STEREOPHILE VOL.38 NO.8 AUGUST 2015

EXCLUSIVE INTERVIEW: ART DUDLEY VISITS THE SOUNDSMITH

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AS WE SEE IT

BY JASON VICTOR SERINUS

THIS ISSUE: What's makes readers of this magazine different from "normal" human beings?

What's an Audiophile? (Part 634)

Most of us have experienced the proverbial curveball that comes out of nowhere to smack us right in the head. My most recent such encounter was pitched by *Stereophile* contributor Steve Guttenberg.

Steve's whammy arrived amid an e-mail exchange among *Stereophile* writers concerning a rather clueless column in another publication on the dearth of women audiophiles. After asking how many female audiophiles each of us knew, Steve G. defined what he meant by *audiophile*: "a person who frets over their system, agonizes over choices, loves gear, and sometimes music. You know, the kind of person who reads *Stereophile* or *The Absolute Sound*. Merely owning a nice stereo doesn't make you an audiophile. Owning a Leica doesn't make you a photographer. You have to be at least a little obsessed."

Huh, thought I. That may be true of some audiophiles, especially gearheads, but it sure isn't true of me. Decades ago, when I made my first foray into the High End by buying used Advent and then Spica speakers, heavy speaker cables, and a CD player (which I hated), it was because I wanted to get closer to the source of musical creation. I wanted to get inside the throats of singers I loved, and feel more of that unquantifiable melding of head and heart, viscera and spirit, that is the essence of transcendent musicianship. For me, better gear = greater chance of liftoff.

Does my obsession with music rather than gear make me a pretend audiophile? Might it be possible that my real reason for writing for *Stereophile* is that it provides perfect cover for a lack of *true* audiophile credentials?

Then came the reality check. I bought those heavy speaker cables after reading an article in *Stereo Review* that purported to prove that speaker cables didn't make an audible difference. My intuition told me that the article was wrong, and that I should try heavier-gauge wire. Wasn't I already eager to spend hours comparing cables and components?

Decades later, don't I have a large collection of Styrofoam packing squares that I stick between cables to keep them at least an inch apart? Don't I insist on repositioning both them and the 2x4s that support my Nordost speaker cables every time the slightest movement propels them to the floor? Haven't I spent endless hours trying to keep that little Antelope Zodiac Gold DAC on its supports, even as my interconnects pull it off yet again and I scream to myself, "Just rest it on your desktop, you stubborn ass, and pretend you can't hear a difference—even though you can!"

Momentarily shaken to my knees, which is often where I find myself when I'm tweaking things, I acknowledge that I am guilty, as charged, of being obsessed. But is it obsessive behavior that makes me an audiophile? Or does it simply confirm that I've been saddled with a generous helping of neurosis that finds its perfect outlet in audiophilia.

It was time to confer with an audiophile buddy, Jeremiah Horn, who studied bass performance at the Peabody Conservatory of Music. He'd just spent $3000 on a new Sony HAP-Z1ES music server and a Shunyata Research Zitron Alpha Digital power cable. I asked Jeremiah what made him an audiophile.

"A sensitivity to nuance, and a desire to hear everything that artists put into their music." Phew. *That's* more like it.

I then had another opportunity to test Steve G.'s theory. Jeremiah told me that he was first going to listen to his Sony with its stock power cable, then swap that out for the $995 Shunyata Zitron, to hear if there was enough improvement in the sound to justify the extra expense. I asked what his Sony was plugged into, and what other power cables he had in his system. When he told me that his power source was a PS Audio Power Plant Premiere connected to a Wyred-4Sound P-1 Ultra, I suggested that he also try switching *that* power cord out for the Shunyata, to see where each would make the most difference. Things got even juicier when I learned that, for two other components, Jeremiah was also using Acoustic Zen Tsunami III power cords, which he could also move around to determine optimal positioning.

Is it obsessive behavior that makes me an audiophile? For most audiophiles, I believe, music is primary.

According to Steve, any bona-fide audiophile would have jumped at the opportunity to add more variables to his listening tests. Instead, Jeremiah moaned. He was far more interested in doing one simple experiment, and listening to music. His ultimate obsession was not listening to multiple permutations and combinations of gear, but to as much music as possible, at the highest quality.

What's an audiophile? I asked engineer David v.R. Bowles, who has served two terms on the Board of Governors of the Audio Engineering Society, is a guest lecturer at NYU Steinhardt, and records the Philharmonia Baroque Orchestra, violinist Nadja Salerno-Sonnenberg, and other artists. "An audiophile loves good sound and good music," he declared, "and strives to extract great sound from quality recordings in order to experience music to its fullest."

A devil's advocate might counter that topflight recording engineers such as Bowles invariably obsess over microphone placements, choices of equipment, formats, edits, and all that. But I'm sticking with his and Jeremiah's definitions. For most audiophiles, I believe, music, not gear, is primary. Which is not to deny that, when it comes to obsessing, many of us get so lost in fussing over details that we lose sight of the forest for the trees. But that just makes us ecologists as well as music-loving audiophiles. ■

Jason Victor Serinus (STLetters@sorc.com is a professional whistler and the voice of Woodstock in the Emmy-nominated Peanuts cartoon She's a Good Skate, Charlie Brown.

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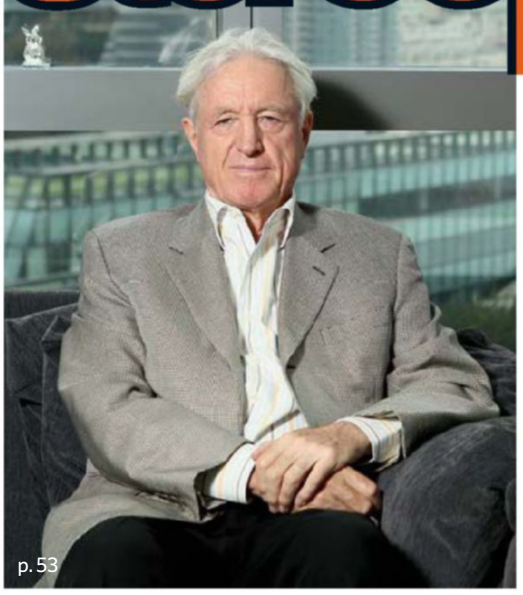
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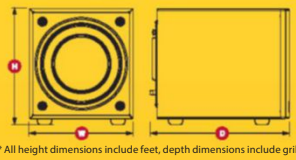

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Equestrian audiophiles

Editor:

Two of your advertisers, Naim and the resurrected SAE brand, are now touting their superamplifiers' capabilities in the unit of *horsepower*. While those of us who have a hazy recollection of high-school physics recall the interchangeability of units of power (as with those of length), does this mean a new trend in high-end audio is emerging, and if so, why?

I am sure the late Mr. James Watt's [1736–1819] feelings would not be hurt. However, given that he lived in the era of the horse and buggy, his goal was to fashion machinery that would surpass the capability of a horse. Therefore, the logic of these advertisers seems counterintuitive, at least to this reader. Will their next move be to specify the dimensions of their products in cubits or, Heaven forbid, furlongs? —*Jonathan Kleefie*
jkleefie@bidmc.harvard.edu

When giants walked the world

Editor:

Herb Reichert's touching tribute to Joe Grado in the May issue reminded me of my meeting Joe *ca* 1962. I was a college student working part time at High Fidelity Unlimited, in Portland, Oregon. One day, Joe walks in with a prototype turntable mounted with his familiar gunstock arm, and a brand-new moving-coil cartridge that sold for the unprecedented price of $100! This at a time when the best cartridges of the day sold for half that. After hearing it, I knew I had to have it.

Later, we talked speakers. Joe told us of his choice of a system comprising an Acoustic Research AR-1W for the bass, a Janszen electrostatic midrange (above a certain serial number), and a Dukane Ionovac tweeter. Again, I knew I had to assemble such a system. Eventually, I did, with borrowed pieces from the store and friends. One can imagine the clutter, in our small apartment living room, of the six speakers, two stereo amplifiers (Marantz model 8B), two electronic crossovers (Marantz model 3), and connecting cables, to say nothing of a source. My bride of only a few months was concerned but understanding. After nearly 53 years, she still is—but I have my own room for the equipment now.

During my two years at the store, I met and visited with other audio giants, including Saul Marantz, Paul Klipsch, and Dirk Roos of McIntosh Labs. Herb—thanks for the memories. —*Ron Maynard*
Portland, OR

Interconnect envy

Editor:

I read with interest Art Dudley's statement that "any 1m interconnect pair that sells for $5000 or more ought to sound amazingly, obviously good *and* increase the size and functionality of one's penis" ("Listening," June, p.29). I am now very concerned, and perhaps a little terrified, to return the $25,000 interconnects that didn't quite "satisfy."

Frankly, this is an entirely new area of Wife Acceptance Factor that I had never considered. Here's hoping that my wife is once again impressed by the jump and performance of RadioShack's top-of-the-line RCA cable. —*Jay Jackson*
jhjorlando@gmail.com

Outrageous

Editor:

While reading Mr. Dudley's most recent column on cables (June, p.29), I was embarrassed to discover that I actually laughed out loud not once, but three times on the first page alone. In addition, after the third outburst I found it necessary to put down the magazine and wipe my eyes free of the spontaneous accumulation of liquid that had occurred around their sockets. To add insult to injury, I'm also forced to admit to his being correct on all points contained within the article.

Upon further review, I have no choice but to ask Mr. Dudley to: 1) curtail his outrageous sense of humor, and 2) stop being so damned right all the time. If these requests are not adhered to in all future writings by Mr. Dudley, I shall be forced to cancel my subscription and refuse all future bunnies given by him.
—*Chris Berens*
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Listening to music

Editor:

Because of a lack of free time, I mostly listen to music on my clock radio, kitchen radio, and car radio. Thanks to excellent classical-music content on radio in the Washington, DC, area, I don't miss a thing. In fact, that's how I decide what to buy. And when I do get a chance to spend time in the living room, my vintage system sounds great. Much of it came from eBay and flea-market items that I repaired, but that leaves more money to spend on music. —*Bill Seabrook*
Dunkirk, MD
BSeabrook@weta.org

Music as a focus activity

Editor:

John Atkinson was correct in what he said about the mainstream-press reviews of the PonoPlayer (May, p.3; June, p.123). I read a couple of them. The problem is not that the writer does not know about audio, but that he does not know about listening to music. Many music lovers think they are listening to music, but they are not hearing the music as a concert experience. I sold some of my very good audio components to my neighbor, and he loves them, and has music playing often, but he has not really listened to them. Like most people, he listens while engaging in other activities, and does not listen concert style. He has no setup for sitting down and hearing music as a focus activity.

I tell my friends who hear my system while standing up that the sound they are hearing is crap compared to the sound they will hear when sitting in the listening seat. The problem is that many people don't want to invest the mental capacity that is required to listen concert style. This means that they seldom engage with music on a conscious level—or get to understand the properties of good sound.
—*Peter D'Castro*
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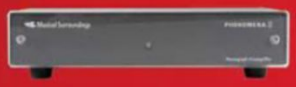

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INDUSTRY UPDATE

AUDIO NEWS & VIEWS

SUBMISSIONS: Those promoting audio-related seminars, shows, and meetings should e-mail the when, where, and who to JAtkinson@enthusiastnetwork.com at least eight weeks before the month of the event. The deadline for the October 2015 issue is July 20, 2015.

US: YOUR LOCAL NEWSSTAND

John Atkinson

Just a note that with this issue, LP maven Michael Fremer starts his 21st year of contributing his "Analog Corner" column to *Stereophile* (p.21) Thanks Mikey. Here's to the next 20 years!

GERMANY: MUNICH

Paul Messenger

The annual High End show in Munich, held this year on May 14–17, may now be the biggest, most important event on the planet dedicated to high-end stereo audio equipment. For more years than I care to remember, it's been organized—and very well, too—by the High End Society of a major Western economy. No brief report can possibly do justice to a show as large as High End. This one mainly focuses on UK and international brands.[1]

High End has survived a transplant of some 250 miles, from an excellent hotel on the outskirts of Frankfurt that the show had outgrown, to a larger, much more flexible exhibition center on the edge of Munich. And while the Munich facility still attracts a fair amount of criticism for its unsupportive acoustics, High End seems to have survived entirely unscathed its competition from a rival audio show, HiFiDeluxe, based in the Munich Marriott hotel and held at the same time. High End has gone from strength to strength, and the 2015 event was no exception. The number of exhibitors was up by 11% over 2014, visitors up by 16% to 20,637, and the show has become a must-visit for the European and Far Eastern audio trade.

If the UK is full of media stories about the return of vinyl, Germans can simply point out that, as far as they're concerned, LPs never went away. In fact, all of Eastern Europe now seems involved in vinyl replay, from the relatively affordable **Pro-Ject** turntables made in the Czech Republic, to the extraordinary **Reed** turntable from Lithuania, which has not only two motors, but belt and idler-wheel drive (don't ask why).

With the emergence of Rumen Artarski's **Audio Union**, I suspect that Bulgaria is about to become a "center of hi-fi excellence." The Bulgarian **Thrax Audio** brand continues to expand, adding hybrid amplifiers, the Lyra d'Appolito speaker with an alloy cabinet and a complex waveguide for its tweeter, and the Helix 1 turntable,

1 You can find our almost live on-line coverage of High End 2015 at www.stereophile.com/category/munich-2015, www.audiostream.com/category/munich-2015, and www.analogplanet.com/category/munich-2015. –Ed.

Clockwise from upper right: Mark Dohlmann and his Helix 1 turntable; the Australian Kyron dipole speaker; High End 2015 took place in a large, airy convention center.

ALL PHOTOS: PAUL MESSENGER

CALENDAR OF INDUSTRY EVENTS

ATTENTION ALL AUDIO SOCIETIES: We have a page on the *Stereophile* website dedicated solely to you: www.stereophile.com/audiophile-societies. If you'd like to have your audio-society information posted on the site, e-mail Chris Vogel at info@XLinkAudio.com.

Please note that it is inappropriate for a retailer to promote a new product line in "Calendar" unless this is associated with a seminar or similar event.

ARIZONA

■ Wednesday, July 29, 7–9 pm: The ***Arizona Audio Video Club*** will hold its monthly meeting at a new location: Esoteric Audio, in downtown Phoenix (111 W. Monroe Avenue at First Avenue). We will be listening to Esoteric's frontline audio components, such as **Aesthetix**, **Boulder**, **Devialet**, **Focal**, **Magico**, ***Rockport***, and **VTL**. Guests are welcome and refreshments will be served. For more information, contact our president, Adam Goldfine, at goldfineam@aol.com; or Esoteric Audio, at (480) 946-8128.

CALIFORNIA

■ Sunday, July 26, 2–5pm: The ***Los Angeles & Orange County Audio Society*** will hold its monthly meeting at **The Source Audio/Video Design Group**, in Torrance (3035 Kashiwa Street). Our hosts, Steven and Jason Lord, will demonstrate top-of-the-line equipment in spaces custom-designed to maximize your musical (and visual) enjoyment. Listen to **Boulder**, **Dan D'Agostino**, **Denon**, **Linn**, **Marantz**, **MBL**, **McIntosh**, **Meridian**, **Moon**, **Pearl Evolution**, **Sonus Faber**, **Totem Acoustic**, **Vienna Acoustics**, **Wadia**, and other fine examples of high-end equipment that will allow those attending to make comparisons and/or just enjoy the music. Included will be the

CONTINUED ON PAGE 19

designed by Mark Dohlmann. Having heard that the Helix had particularly clever mechanical isolation, I gave the sample at High End a hefty shove, not realizing that it was actually playing at the time. The entire turntable moved alarmingly, but the cartridge in the **Schröder** tonearm continued to imperturbably track the groove, testifying to the remarkable efficacy of the supporting structure made by **Minus K**, which normally supplies academic institutions and the like with supports for delicate optical measuring equipment; I suspect Minus K has found a new market.

I guess Slovenia sort of counts as Eastern Europe, though Frank **Kuzma** seems to have been on the hi-fi scene for as long as I can remember. Reflecting the current trend toward longer tonearms, his controversial new 4Point14 is no fewer than 14" long. I made the point that the disadvantage of so long an arm's high effective mass would be greater than any bonus of geometry, but according to Kuzma, the arm's length helps it cope with the vibrations generated by the cartridge.

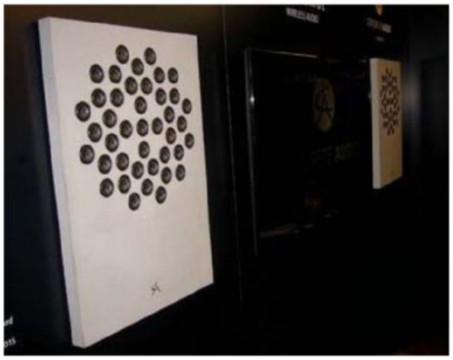
Vinyl was ubiquitous at High End 2015, but I also saw at least two examples of new, high-tech DAC technology. **Chord Electronics** has long been associated with the unique Field Programmable Gate Array (FPGA) DAC technology developed by consultant Rob Watts through several generations. Chord's portable Hugo DAC has been particularly successful commercially, and has more recently been joined by a much heavier and improved tabletop model, the Hugo TT. In Munich, however, Chord introduced a far more advanced DAC, the DAVE (for Digital-to-Analogue Veritas in Extremis). Based on the large LX75 version of the Spartan 6 FPGA, the DAVE is claimed to significantly improve timing and noise shaping, and its reconstruction filter has no fewer than 164,000 taps—more than six times the number used in the Hugo. It will ship this fall.

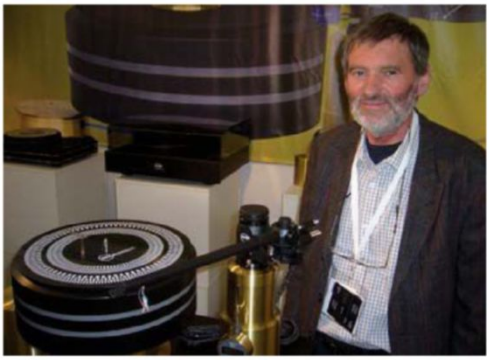
I also encountered Larry Gullman, who described a "new-generation" DAC technology introduced at the show by his company, California's **MSB Technology**. Critically, output from a new multichip ladder DAC produces enough voltage and current to drive a pair of headphones without requiring the usual op-amp output stage.

T+A Elektroakustik, one of Germany's major hi-fi specialists, introduced the new R Series 2000, based on the high-voltage approach used to operate devices under more linear conditions in T+A's earlier HV series. T+A actually introduced some tube electronics a few years ago; I was surprised to discover that they'd discontinued these and reverted to solid-state. Lothar Wiemann, director of R&D, explained that the company had been running out of NOS tubes and wasn't happy with the performance of brand-new devices (possibly because the use in tubes of certain materials has been banned on safety grounds).

Major German electronics brand, **Burmester Audiosysteme**, was showing the new 150 network player and 151 Musiccenter, but arguably its most interesting initiatives are its two new Phase 3 exercises in styling: The Bauhaus-influenced Retro Style and the more industrial Loft Style both look strikingly original, combining the large, stand-mounted B15 loudspeakers with a 161 receiver and a stereo power amp.

New loudspeakers were everywhere





Left to right: Concrete Audio's wall-mount speaker with its 41 tiny drivers; the extraordinary Onda Ligera speaker; tonearm guru Frank Kuzma.

ALL PHOTOS: PAUL MESSENGER

at High End, but speculation was rife about the implications of the news that the **Music Group**, owners of pro-audio brand Behringer, had just taken over the **TC Group**, which owns **Tannoy** and **Dynaudio**. Tannoy showed a number of new initiatives, including its relatively inexpensive new Revolution XT range of speakers, with extensive changes to the motors; revisions of the Prestige (now GR) models; and bass EQ revisions with massive new plinths for the Definition models.

Other potentially interesting speakers from UK brands included **ProAc**'s hefty Response K8, with its shallow midrange horn milled from solid aluminum, and the **Neat Acoustics** Momentum SX7i, which is much larger than its previous, Motive models. However, the BBC's influence remains very strong: **Graham Audio**, with help from Spendor founder Spencer Hughes' son Derek, has been licensed to produce the BBC's very bulky LS5/8 design, alongside the smaller LS5/9, and has purchased the Chartwell name in order to produce the LS3/5a.[2] No less interesting is the System 3D, a passive, four-box, PA-style speaker system developed by Hughes for the Royal Opera House, in London's Covent Garden. Harbeth Audio, too, is following a BBC-heritage agenda, albeit without licensing designs to manufacture replicas; the commercial success of its Super HL5plus has led to the creation of this year's significantly larger Monitor 40.2.

Picking my way through the many other speaker brands exhibiting at High End 2015, I found two based on single full-range drivers. **JoSound**'s Horus is claimed to combine the ad-

2 See Herb Reichert's review of the Falcon LS3/5a elsewhere in this issue (p.85).–Ed.

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Clockwise from upper left: Burmester's Loft Style system; the Lithuanian Reed turntable with belt- and idler-drive; Derek Hughes; the Bulgarian Thrax Lyra speaker.

vantages of horn, reflex, and transmission-line loading, and is certainly more compact than earlier examples. **Voxativ** has added to its compact, wideband Pi speaker the 9.87 System—a dipole sub-70Hz woofer that seemed very effective.

Full-range dipole operation was being promoted by a very impressive Australian brand, **Kyron Audio**, via its Kronos speaker, which has integral active amplification. Perhaps the weirdest dipole speaker—nay, the most bizarre speaker of any type—was from Latvia's **Onda Ligera**, whose Reflector 218Q has no baffle whatsoever; instead, four large bass drivers point rearward, completely surrounding a mid/treble horn.

Not dipolar but no less strange was the German company **Concrete Audio**'s superslim, wall-mounted panel speaker with no fewer than 41 tiny drive-units, driven actively as a two-way. More conventional in outline but with particularly interesting technology details was a speaker from another German company, **Audio Physic**: Their new Avanti floorstander has a woofer cone of prestressed aluminum, ceramic foams in its enclosure, and foamed copper in its crossover network. From Switzerland, **Boenicke Audio**'s W8SE+ sounded much larger than its size had led me to expect, its tiny dimensions disguising a number of special tuning techniques—and a hefty price. **Focal** introduced the two models of its new Sopra line, to fill the gap between its Electra and Utopia lines. The Sopras feature shaped and time-aligned front panels, inverted-dome tweeters of beryllium loaded by horns at the rear, and a tuned mass damper that's claimed to reduce midrange distortion by 70%. Focal's electronics partner **Naim Audio**'s NAP200, '250, and '300 power amps now include versions of the discrete regulator (DR) power supplies that first appeared three years ago in Naim's outboard preamplifier supplies (see "Industry Update," October 2012, Vol.35 No.10).

One of the more impressive demonstrations was purely visual. I found Max Townshend, of **Townshend Audio**, maker of the Seismic Isolation platforms, jumping up and down in front of couple of floorstanders, one on spikes, the other spring-decoupled. Each was connected to an iPad display that clearly showed the efficacy of the spring decoupling, despite using a speaker with greater bass output. It was also good to see that **Meridian** had taken a large room in which to promote its MQA digital processing initiative.[3] Principal Bob Stuart told me that more than 100 business partners had signed up, that MQA was now an operation entirely separate from Meridian, and that the next major announcement will be in early September at IFA, the huge annual consumer-electronics show held in Berlin. ■

3 See www.stereophile.com/content/ive-heard-future-streaming-meridians-mqa and www.stereophile.com/content/mqa-munich.—Ed.

CONTINUED FROM PAGE 15

world premiere of a new Focal speaker. Industry representatives will be on hand to discuss their brands, and **Eastwind Import** will offer for sale personally selected vinyl and CDs. A raffle is planned, and an extraordinary lunch will be served. Parking is free. Guests, visitors, and new members are invited. For more information, visit www.laocas.com or call Bob Levi at (714) 281-5850.

■ Friday–Sunday, August 14–16: The ***California Audio Show*** takes place at the Westin San Francisco Airport, 1 Old Bayshore Highway, Millbrae 94030. For more information, visit http://caaudioshow.com.

■ Sunday, August 23, 2–5pm: The ***Los Angeles & Orange County Audio Society*** will hold its monthly meeting at **The Audio Salon**, in Santa Monica (at Bergamot Station, 3035 Kashiwa Street, Gallery F1). Our host, Maier Shadi, will demonstrate top-of-the-line equipment in a space custom-designed to allow music to sound like music. **Audio Alchemy**'s Peter Madnick, who been a part of this industry for over 40 years, will address the Society. For our meeting, the Audio Salon will feature the latest electronics from Audio Alchemy—a spectacular system at a price that won't break the bank. **Eastwind Import** will be on hand to offer for sale personally selected vinyl and CDs. A raffle is planned and an extraordinary lunch will be served. Parking is free. Guests, visitors, and new members are invited. For more information, visit www.theaudiosalon.com and www.laocas.com, or call Bob Levi at (714) 281-5850.

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ANALOG CORNER

BY MICHAEL FREMER

THIS ISSUE: Sperling-Audio's L-1 turntable and TA-1 tonearm get thoroughly Mikey'd.

From the Twilight Zone

With its swept-wing shape and platter-forward design, Sperling-Audio's L-1 turntable ($35,950, without tonearm) stands out in a crowd. This high-mass design from Germany is the result of a collaboration between Ansgar Sperling and Michael Bönninghoff, two fiftysomething engineers who began working together in recording studio construction.

Both also bring to the L-1's design and construction years of experience in signal processing. For years, Bönninghoff was the chief developer at Brauner microphones, and today is the technical director of the German pro-audio company S.E.A. Sperling worked in radio and signal processing, and has a strong interest in tubed electronics.

PHOTO BY ECHOPARK

The Sperling's Design

The L-1's massive aluminum-alloy platter alone weighs 60 lbs; the entire turntable assembly weighs about 110 lbs. The massive bearing assembly bolts to the lower aluminum V-shaped wing, which sits on three massive, adjustable feet of machined aluminum, the central one directly below and coupled to the platter's bearing assembly, where it acts as an energy drain. The points of the feet sit in nicely machined and plated dimpled discs.

The two halves of the "V," each topped by a mounting plate for a tonearm, are of sandwich construction: three plates of aluminum alternating with slabs of a variety of materials, all five layers secured together with four beefy M8x90 bolts. The sandwich fillings can be of polyoxymethylene (POM), acrylic, slate, or wood, depending on the customer's preference—the tuning-obsessed can, with little difficulty, swap them out and compare their sounds.

The L-1's most obvious innovation is the armboard's mounting plate, which looks like something filched from an observatory. It consists of a pair of eccentrically arranged circular plates, each of which can be rotated, then locked down with machine screws that fit into slots around the plate's periphery. Drilling the arm-mounting hole off-center in the inner of the two circular plates allows for an even wider range of adjustment of the tonearm's pivot-to-spindle distance.

A removable, crescent-shaped insert next to the circular plates can be swapped out with the plates to provide enough pivot-to-spindle distance for 12" and even longer arms. While this requires a lot of screwing and unscrewing, it also provides unparalleled flexibility of positioning. By noting the numbers and letters silkscreened on and around the various plates, you can easily swap out multiple arms without having to remeasure and readjust pivot-to-spindle distances.

The M-2 motor housing is also large and massive, and rests on three conical, height-adjustable aluminum feet sitting in dimpled discs. UK-based Trident Engineering provides the low-voltage DC motor, which is driven by the outboard, zero-feedback NRM-1/S motor controller. At the 2013 Munich High-End Show, Ansgar Sperling told me that the famous German optics company Carl Zeiss AG manufactures the high-precision motor pulley and does all of the plating.

The platter is driven by an inflexible Mylar tape that resembles the clear leader of reel-to-reel audio tape. Sperling provides a few variants that it claims alter the sound. To make it easier to use and adjust tension, the motor is secured in a movable platform inside the M-2, with its distance from the platter adjustable via a system of dials for coarse and fine tunings.

Setup and Use

For $35,950, you're entitled to but don't always get the level of quality of L-1's exquisite machining and plating—which also goes for the Sperling's wheeled road case, one of the biggest and most attractive I've seen. To review turntables, I use a large Harmonic Resolution Systems base; I adjusted its six feet for the L-1's high mass, and I and Gideon Schwartz, of Sperling's US distributor, Audio Arts, hoisted the L-1 onto the base. That was the easy part.

Then we assembled the substantial inverted-ball bearing system. Next to that of my Continuum Audio Labs Cali-

burn turntable, which I've seen only in photos, the L-1's bearing system is the beefiest I've seen on a turntable, and consists of a large-diameter spindle integrated into the oil reservoir, the latter bolted to the main chassis. To fill the reservoir with oil, you remove the sump's upper ring by loosening six screws. After placing the tiny ball atop the spindle, you dribble oil onto the ball, letting it flow down the shaft and into the reservoir, until there's a pool of oil about 1mm deep. Then you slide the equally massive spindle bushing over the top, to capture the ball. Then you rotate the bushing to circulate the oil. Add oil until it's level with the top of the reservoir, then place a pair of O-rings in the grooves, sandwiching the upper ring you've previously removed. To seal the reservoir, tighten the screws.

Then it was time to hoist the platter and lower it over the bearing, and here we ran into trouble: The platter, still cold from shipping, wouldn't fit over the spindle. It got stuck, and removing it wasn't easy. Schwartz had to leave, so he called in Michael Trei, his go-to setup man, and the guy I recommend when people ask for someone good to set up a turntable after I've had to turn them down. (I don't have time.) By the time Trei arrived, the platter had warmed up, and now it slipped over the spindle, if still not all that easily. We looped the clear drive belt over platter and pulley, adjusted the tension, plugged in the motor controller, and the platter began spinning.

The L-1's two speeds of 33⅓ and 45rpm can be individually adjusted with a pair of concentric, vernier-type dials toward the front that, depending on where you place the controller, can too easily be nudged during everyday record playing; it's a good idea to regularly check the speed with a strobe.

Sperling supplied two armboards: one each for my Kuzma 4Point and Sperling's own TA-1 arm. Since I was familiar with the Kuzma but not the TA-1, I began by setting up the 4Point. That done, it was time to play an LP.

Hmmm. . .

Sperling has gone to great lengths to produce a dense, dead, high-mass, energy-absorbing and -draining aluminum platter that's among the most massive I've encountered. But for reasons I don't understand, they chose to top the platter with eight raised, wedge-shaped "exserts" (*ie*, the opposite of inserts) that attach to the platter top with tiny screws. The record rests atop the exserts—and *that's* the problem. An LP is a relatively lightweight piece of plastic that, if not damped or tightly coupled to the platter surface, easily transmits energy produced at the stylus/groove interface. That's why we have record mats, clamps, and weights—to damp the disc and prevent it from vibrating and feeding back to the stylus unwanted energy. Mats with raised discs or rings may be useful on inexpensive turntables, but not for ones with 60-lb platters.

When an LP is tightly coupled to the platter, it's damped. Resting it atop the L-1's exserts produces open spaces that allow the record to vibrate. Sperling offers exserts in a variety of materials, each of which the company claims produces a slightly different sound—but why not just tightly couple record to platter and avoid having to tune it altogether?

With the stylus on a record and the platter at rest, a gentle tap on the record's label produced a loud, deep *thump*. The volume of this *thump* was

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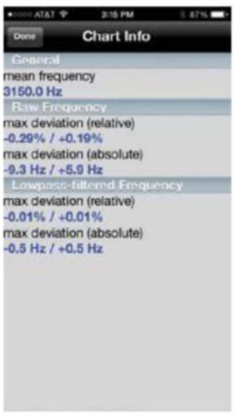
reduced when I used the Stillpoints or Kuzma record weight on the Sperling's spindle, and even more when I used a well-damped record mat, such as Merrill-Scillia's E.D.M. lead-and-cork mat (no longer made) on top of the exserts. No more deep *thump*. After auditioning the L-1 with and without the mat, I left the mat on the platter for all of my listening—the bottom end sounded faster and nimbler.

With the Lyra Atlas cartridge on the Kuzma 4Point, immediately obvious was the L-1's rock-solid speed stability, which I later confirmed by measuring it with Dr. Feickert Analogue's PlatterSpeed app (fig.1). Low-pass filtered (fig.2), the results were ±0.5Hz (absolute) and ±0.01% (relative).

The L-1 produced solid, stable imaging, clean and precise transient response, and the dynamic slam and authority managed by only the best turntables: free of low-frequency overhang, but capable of reproducing any harmonic richness contained in the groove and none that isn't. But if you demand romance from *all* of your records, look elsewhere—or add it with a warm-sounding cartridge or tonearm. The L-1 is a 'table you can put a stethoscope on with a record playing and hear *nothing* from the motor or the grooves. You can tap on its base or arm mount and also hear nothing.



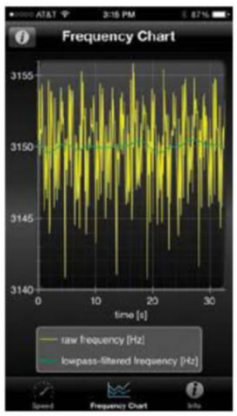


Fig.1 (left): Sperling-Audio L-1 turntable, speed stability data.
Fig.2 (right): Sperling-Audio L-1 turntable, speed stability (raw frequency yellow, low-pass filtered frequency green).

Listening to the L-1

An evening of piano recordings, both solo and with jazz combos and orchestras, confirmed the L-1's impressive speed stability and pitch control (as long as the record had been pressed concentrically). While the L-1's bottom octaves weren't quite as extended, generous, or *forceful* as the Continuum Caliburn's, its bottom-end grip and rhythmic authority were. The Sperling's low-frequency starting and stopping abilities were up there with the best I've heard, though I've heard more low-frequency weight from some other 'tables.

Side 1 of Thelonious Monk's *The London Collection: Volume 1* (Black Lion/ORG Music 1052) made clear the L-1's grip and control, but I listened to all four sides of this 45rpm reissue because the Sperling also produced realistic transients, generous sustain, and stable decays into very black backgrounds, all of which helped produce a three-dimensional image of a piano floating in space: Monk in my room, playing for me. The L-1 is one of the very quietest turntables I've heard—it well hid the mechanical nature of vinyl playback.

It's difficult to believe that more than a decade has passed since Mobile Fidelity Sound Lab reissued Patricia

Barber's *Nightclub* as two 45rpm LPs mastered by Paul Stubblebine, but already it's been out of print for a while. Barber's original label recently reissued it on two 180gm LPs (Premonition 907631)—three sides at 33⅓, one at 45—this time mastered by Bob Ludwig and cut to lacquer from the high-resolution digital master files by the late Doug Sax (the original recording, by Jim Anderson, was digital multitrack). The Lyra-Kuzma-Sperling combo easily laid bare the differences between the two versions, and the new one is superior in every way: deeper, better-textured bass; cleaner piano transients and vocal sibilants; better focus overall; and a richer, more intimate listening experience.

The armboard for the Swedish Analogue Technologies tonearm that I reviewed in July arrived from Sperling, and in it went. That took the L-1 to an even higher level of performance in terms of retrieval of low-level detail, resolution of textures, bottom-end authority, and stability of images and soundstaging. Only the very best turntables produce this kind of bass control, combined with the fast recovery and settling time required to produce rhythmic nimbleness.

I wish I had the full array of turntables at this price point for a shoot-out, including VPI's Classic Direct Drive. All I can say is that Sperling's design takes high mass to the max, with the expected benefits of rock-solid speed stability and excellent isolation but without paying a price in the alleged disadvantages of high-mass 'tables: energy storage and reflection that produce sluggish rhythmic performance. Far from it. The Sperling L-1 *rocks.*

Sperling's TA-1 tonearm *swings*

Once I'd gotten a handle on the Sperling L-1 with the two familiar tonearms, it was time to set up Sperling's unusual TA-1 arm (patent pending), designed by Robert Fuchs in cooperation with Sperling-Audio. The TA-1 costs $9750 with 10" or 12" armtube; additional armtubes of either length cost $2975.

The TA-1 is an unusual, hanging-unipivot design: The arm is suspended from a single metal point atop an armtube of wood and metal that's attracted to the dimpled magnetic bottom of a massive chromed screw threaded into an even more massive chromed base. A similar threaded arrangement, but from below, is adjusted via magnetic attraction—there's no physical contact between the arm and base—to damp and to some degree control the usual single-point wobble. A small threaded rod behind the pivot point, with weights on each end, adjusts azimuth.

The vertical tracking force (VTF) is coarsely set with a underhung counterweight that slides along the part of the armtube that extends behind the pivot. Fine adjustment of VTF is via another threaded rod with weight, this one extending from the counterweight's rear. None of these threaded weights can be locked in place, and all are easily rotated.

The headshell connects at a single point, with variable offset angle. The cartridge is first attached to a slotted plate with integral finger lift. This plate, which can be made of one of a variety of materials (brass, aluminum, panzerwood, etc.), is secured to the flattened end of the wooden armtube by a single mounting bolt that requires considerable torque to tighten.

The cartridge clips and RCA plugs are connected by single runs of wire for which Sperling provides no form of strain relief. It's up to you to prevent strain and cable breakage, and to produce a loop adequate to keep the wire from interfering with the arm's free movement as the wire exits the arm's bottom rear, just in front of the magnetic bearing. I feel this part of the TA-1's design is incomplete and inadequate, especially considering the cost.

Setting cartridge overhang could be a real pain, because locking the cartridge carrier plate into the armtube holder blocks access to the cartridge screw heads. So after you've determined that your overhang is incorrect—which, at first, it inevitably will be—you have to loosen the single-point mount, remove the plate, readjust overhang, reattach the plate, and check again, removing and reattaching each time as you adjust overhang and then offset angle.

Once that's complete, you adjust VTF, vertical tracking angle (VTA), and stylus rake angle (SRA)—the latter two by adjusting the mounting base height—azimuth, and, finally, the amount of magnetic attraction anti-wobble damping; after which you must recheck VTF, which will have been affected by the damping magnet. The TA-1 has no antiskating mechanism, which means the stylus will ride the groove's inner wall as it nears the lead-out groove. The offset angle makes that a 100% certainty, though the 12" version will skate less because its offset angle is smaller. The advantage of this system is that you can pre-mount a variety of cartridges on armtubes and easily swap them out (though each time, you'll have to deal with the lack of strain relief and carefully reroute the wire). Sperling offers a variety of armtube woods for further tuning, and a 12" armtube well as the standard 10" one. Because of Sperling's unique mounting-plate system, even swapping a 10" for a 12" arm should take only a few minutes.

Once I got the hang of it, setting up the Sperling arm wasn't all that difficult, but it was harder than with many arms—and setting VTA and SRA weren't exactly user-friendly or repeatable. I'm also less than enthused by the three unsecured threaded weights: one at the back of the counterweight, two on the azimuth adjustment bar. Unsecured, they could be prone to resonate.

More problematic is the lack of an arm lock. Continuum's Cobra arm doesn't have one either, but that arm gets "blocking" from the plinth. The Sperling TA-1 hangs in empty space, dangerously exposed and all too easy to bump into. The 12" armtube only exacerbates the problem, as does the fact that the L-1 turntable's design thrusts the platter and arm so far forward toward the user.

TA-1 sound

Despite my solid skepticism about its design, the TA-1 tracked very well, according to Image Hifi's *Vinyl Essentials: The Ultimate Pickup Test Record* (LP, Image Hifi LP003). Of course, this is as much, if not more, a function of the cartridge as of the tonearm, but it takes two to tango, and the TA-1 proved to be a good tracker, though I didn't experiment with warped records.

A friend believes that I like Kuzma's 4Point arm because I'm a reviewer and want a more "analytical" sound. That's true. But an analytical sound is also what I'll want when I retire. I don't want an arm to "sound" at all. I want it to *not* sound, and to leave any sounding to the cartridge. The less an arm sounds, the more true detail it will reveal—at the very least, the more it will reveal the character of the transducer connected to it. The fact that not everyone feels that way is why we have tonearms that can be tuned.

I used a variety of cartridges in the TA-1, including the Fuuga moving-coil

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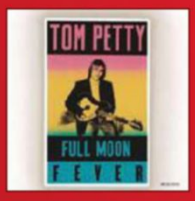

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($8950; review next time), whose lack of a stylus guard made it double-fun to install, adjust, and leave hanging exposed on the TA-1. There was no doubt that the TA-1 had a "sound"—something that Sperling tacitly acknowledges by offering the ability to tune the arm with choices of cartridge-carrier and armtube materials. That sound was pleasing and intoxicating—a low-Q, low-amplitude character that subtly accentuated the lower midbass, adding a pleasing warmth to male voices and double basses without at all mucking things up and becoming obtrusive. In my opinion, it was what importer Audio Arts characterized as the TA-1's "magic."

I'm in the midst of reviewing a new boxed set, Roxy Music's *The Complete Studio Albums* (8 LPs, Virgin EGBSX 1). "Sunset," the last track on *Stranded*, features piano and a double bass played by Chris Laurence. This album's many wonderful details have slowly revealed themselves over the 40 years (!) I've been playing it. Regardless of cartridge, the TA-1 accentuated the bass's resonant body but shortchanged the string textures when Laurence bows it. It did likewise with the piano, softening transient attacks and accentuating the soundboard. My brain rode the gliding warmth, which also magnified the image size. When this is done as unobtrusively as the TA-1 managed it, the results are indeed "magical"—and intoxicating. When I switched to the SAT tonearm, attacks tightened, and there was even more bottom-end weight in a more compacted space. The plucked bass notes stood out more, as did the percussion. The feeling of physical space between instruments intensified, along with the mix's three-dimensionality.

Not everyone cares about such things. There are even those who claim that these sorts of imaging, space, and three-dimensionality are artifacts of the recording and playback processes, and are not part of the experience of hearing live music. For them, there are arms like the TA-1, which produce "magic" and make a most pleasing sound. Inept wooden arms just sound warm, soggy, and lifeless. Inept metal arms sound bright, hard, and amusical.

Conclusions

Were I to buy a Sperling-Audio L-1 turntable, I'd surely also opt for a TA-1 tonearm to install on one wing. I ultimately concluded that, despite its high-mass platter and plinth, the sound of the L-1 was somewhat stingy in the very area where the TA-1 was generous. You could always install an "analytical" arm on the L-1's other wing—even one temporarily borrowed from a friend—and check out those "recording artifacts." You might like them—or you might not! ■

Michael Fremer (fremer@analogplanet.com) is the editor of AnalogPlanet.com, a website devoted to all things analogical.

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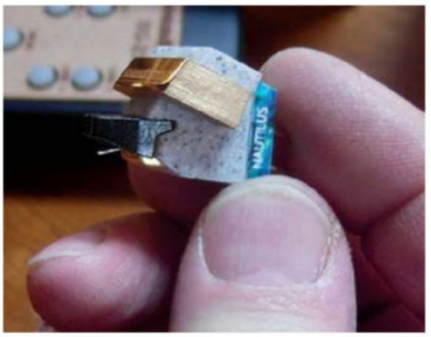
LISTENING BY ART DUDLEY

THIS ISSUE: A visit with phono cartridge maven Peter Ledermann.

Round Trip



Clockwise from above: The Nautilus ($2250), whose nameplate is made from natural shell, is among Soundsmith's new series of medium-output moving-iron cartridges; a low-output version, the Paua, is also available; technician Joe Davis-Logan assembles a Soundsmith cartridge; where do ebony cartridge bodies come from? They come from a CNC machinist, who supplies clamshell-like halves in a manner reminiscent of model-car kits.

During our second trip to the UK, my wife and I drove from Heathrow Airport to Swindon, to visit an older couple we'd met on our first trip. We arrived around noon, and Vera and Ross made us a nice lunch, which we enjoyed while looking at scrapbooks filled with family photos and well-worn newspaper clippings. Vera asked where we intended to spend the night, and I said that our next stop was York.

Our friends were horrified. "That's hours from here: You can't do it in just one afternoon!" (Our UK road atlas suggested we could make the drive in about four hours; it took slightly longer, only because I felt compelled to stop along the way to photograph a magpie, as I'd never before seen one.) We assured our hosts that, as Americans, we were used to driving hundreds of miles in a day, even for routine trips. Nevertheless, Vera and Ross insisted on packing a meal—cucumber sandwiches with salad cream, some nice cookies with jam filling, a container of orange soft drink—and extracting from us a promise that we would stop and rest along the way.

Vera and Ross, two of the sweetest people I've known, passed away long ago, but I think of them every time I set about driving any distance greater than 100 miles. I pack a meal, whether or not I think I'll want one—I almost always do—and I make sure to pause every few hours to rest my eyes and stretch my legs.

So it was on April 23, when I set the controls for the heart of Peekskill, New York, intent on visiting the headquarters of The Soundsmith: a manufacturer of electronics and loudspeakers that also happens to be one of only two makers of high-fidelity phono cartridges in all of North America (the other being Grado Labs).[1] Soundsmith is owned and operated by Peter Ledermann, a self-taught engineer whose love affair with audio began when, at the age of three, he assembled a crystal-radio kit his father had given him. By the time he'd entered his teens, Ledermann was salvaging and repairing all manner of electronics—radios, tape decks, even television sets—but it was the acoustic phonograph for which he felt a special affinity: "I understood Edison's elegant invention at a tender age," he says. "It matched the impedance of the groove to the impedance of the air. I got it!"

After a few semesters of college in the late 1960s, Ledermann began his professional career in retail, doing repair work for Audio Experts, a shop in White Plains, New York. After that, he worked at RAM Audio in Danbury, Connecticut, alongside chief designer Richard Majestic—with whom he devised, among other things, a loudspeaker feedback system that used a transformer to derive an error signal. (I always perk up when I hear the word *transformer*.) Then, in 1976, Ledermann undertook his highest-profile audio job yet: director of engineering at Bozak, Inc. Once there, he was assigned to reengineer Bozak's entire line of loudspeakers and mixing decks—after which he designed a new miniature loudspeaker, the MB-80, by transforming Rudy Bozak's well-known 6" aluminum cone into a full-range driver.

In 1979, Bozak sold the company that bore his name, and Ledermann struck out on his own. He supported himself with repair work for a year, then began an 11-year stint at an IBM engineering think tank nestled away in the company's T.J. Watson Research Center, in Yorktown Heights, New York. Despite his lack of formal training in engineering, Ledermann says, he "became known in the company as someone who was resourceful and inventive. I paid my dues through intuition. I paid my dues by being as curious as I could be."

But Ledermann's interest in designing and making audio products never waned. Indeed, he says, he created Soundsmith all the way back in 1970—as an audio-industry "mentoring company"—and kept it going throughout his other professional engagements. Then, in 1990, Ledermann left IBM and began to devote all of his energies to Soundsmith.

1 Shure Brothers phono cartridges are now made in Juarez, Mexico. Stanton Magnetics, now owned by the Gibson Guitar Corporation, of Nashville, Tennessee, recently ceased production of all cartridge models and all but one of their replacement styli.

ALL PHOTOGRAPHS: ART DUDLEY

The needle wags

Peekskill is a decent enough small city, and Soundsmith is located in a decent enough industrial park, bordered on one side by the Hudson River and by historic US Route 9—aka Broadway in both upper Manhattan and Saratoga Springs—on the other. While navigating the latter, I scarcely missed being involved in an accident between the Toyota Prius directly in front of me and a pickup truck whose driver seemed oblivious to the hazards of sudden lane changes in busy traffic circles. Good thing I was well rested.

Less harrowing was my elevator ride to the fourth floor of 8 John Walsh Boulevard, where Soundsmith occupies two adjacent spaces totaling some 8000 square feet. The door to the first and larger of those spaces opened onto a small reception area decorated with photographs, posters, awards, and a silent display of mint-condition vintage hi-fi gear. (MasterCard and Visa signs suggested that consumers are, indeed, welcome.) From there, Peter Ledermann led me to a large, well-lit room, where two of his 13 employees were engaged in the commercial activity for which Soundsmith is now well known: the manufacture of a line of phono cartridges, the vast majority being of the moving-iron (MI) persuasion.

On the subject of his transducer technology of choice, Ledermann is passionate and articulate. While acknowledging that there exist many good cartridges of the moving-coil (MC) and moving-magnet (MM) varieties—in the former, tiny bobbins of fine wire are stylus-shook within the flux fields of stationary magnets, while the latter employs stationary bobbins of wire, in whose face the needle wags one or two tiny magnets—Ledermann prefers the MI, in which magnets *and* coils stay put and the stylus coaxes into motion a very small piece of magnetically permeable metal, which displaces the flux lines of the former and induces signal in the latter. In person, as on his website, Ledermann points to numerous advantages of his third-stream technology, most pertaining to a single fact: In an MI cartridge, the moving mass tends to be lower than in other cartridge types. And, as Ledermann says, "I am an absolute believer that moving mass is the enemy of cartridge performance."

The moving element in Soundsmith's MI design is appropriately tiny, but that isn't its only claim to fame. Inspired by a design created in the 1960s by Bang & Olufsen—replacements for whose cartridges and styli are now manufactured, under license, by Soundsmith—Ledermann chose for his moving element a cross shape, and aligned it so that, when the cartridge is subject to the prescribed downforce and placed on a record, the cross hovers perfectly equidistant from four stationary coils and magnets. When stylus deflection moves one leg of the cross away from one set of magnetic flux lines, the position of the opposite leg of the cross is moved closer to its own electromagnetic sweet spot—and so the Soundsmith design avoids the dynamic compression that would occur if a single element were moved too far from the flux-line epicenter. It is, in a real sense, a push-pull cartridge.

Thus my amazement to see, in real life, how tiny are those crosses and coils, and how much painstaking care is required of the technicians who align and assemble them—and who anneal the magnetically permeable elements, and weld in place the thinner-than-hair wires, and perform all manner of other

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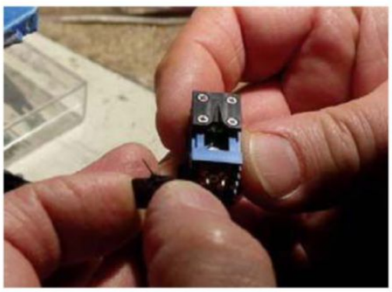
seemingly impossible tasks. Surely, the clinical lab at our local hospital has at its disposal fewer microscopes than does Soundsmith, where I counted at least eight in the cartridge-assembly area, and a couple more in Ledermann's office alone. All Soundsmith cartridges are made by hand, and most are the products of a few different technicians; the top-of-the-line models are built solely by Ledermann.

Pecos Pete

Distinctions among Soundsmith's various MI models fall into a few different categories. The company makes cartridges that produce low, medium, and high output voltages, with suspensions that exhibit low, medium, and high levels of compliance. Cantilever choices include aluminum alloy, telescoping aluminum alloy, boron, ruby, and specially treated cactus spine. (The last is no joke: Not long ago, Peter Ledermann discovered that, carefully trimmed to the right shape, the once-popular stylus material makes a superior cantilever that offers a virtually perfect combination of self-damping properties and stiffness.) Stylus shapes include titanium-bonded elliptical, nude elliptical, contact line, and optimized contact line. And, of course, the bodies of Soundsmith cartridges are made of different materials, including acrylic, composite (think: *kitchen counters*), and various species of wood.

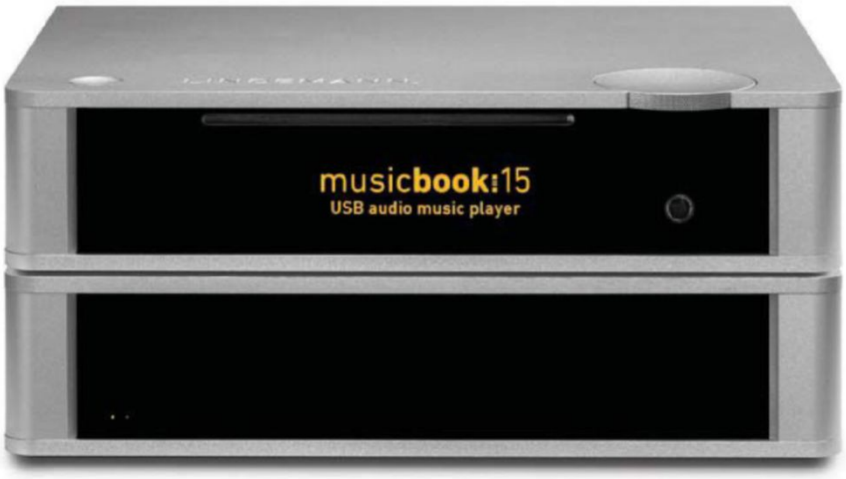


Top: The Soundsmith Strain Gauge cartridge, with stylus removed. **Above:** The lion in early spring: Peter Ledermann at lunch.

Taking into account the options described above, as well as the company's unusual naming conventions, there would seem to be about 30 different Soundsmith cartridge models—a high enough number to impart to this perfectionist brand the slightest whiff of JC Whitney. The actual total is closer to 60, given that all of Soundsmith's MI models are also available as mono cartridges. The mono versions are still push-pull, still four-coil cartridges, but with coil arrangements that differ, electrically, from those of their stereo counterparts. Thus, by sheer numbers alone, Soundsmith is pretty much Mono Central. And it's no coincidence that Ledermann shares my enthusiasm for single-channel playback, hailing its comparative lack of phase distortion and consequent sonic wholeness and *whomp*.

Ledermann's enthusiasms also include a healthy sense of thrift: While it's true that no Soundsmith MI cartridge has a user-replaceable stylus—an unavoidable state of affairs, given the high level of skill required to align the teensy iron cross vis-à-vis the cartridge's similarly small signal coils—

Dr. Jekyll.



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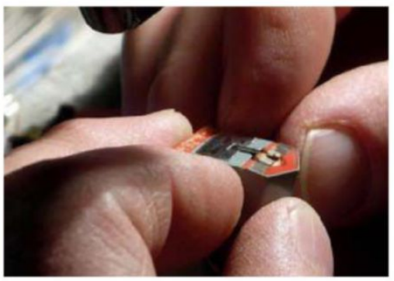

Far left: The faceplate of the Soundsmith SG-810 preamplifier is machined from cocobolo, a popular tonewood; the light-colored strip near the bottom edge is of sapwood, prized by some luthiers for adding visual contrast to the backs and sides of instruments. **Left:** Left behind in the good hands of Peter Ledermann: my Decca Gray.

the company guarantees that every cartridge it sells can be retipped for 20% of its original price. Repeatedly.

Lower still is the cost of maintaining Ledermann's top cartridge model, the Soundsmith Strain Gauge ($8600,[2] including the most basic version of its requisite preamp): Replacement styli can be swapped out in the field, and range in price from only $350 to $950.

User-replaceable styli with three-figure price tags are made possible because the transduction principle for which the cartridge is named—at least two other strain-gauge pickups have appeared on the market in years past—is so different from that of most other phono cartridges. MI, MC, and MM cartridges all respond to the bumps in the groove of a moving record by generating their own electrical signal. (As pointed out in the June 2014 "Listening," those products are unique among all source components in that regard.) But a strain-gauge cartridge responds to those bumps by modulating a current supplied by its partnering preamp, which it does by means of a tiny silicon element that varies resistance in response to physical stylus deflection. Thus the Soundsmith Strain Gauge can claim even lower moving mass than an MI cartridge—and, as a bonus, its modulated signal requires only minor amplitude-response correction, and not the full-blown RIAA equalization required by most phono pickups.

Ledermann would also have you know that, because of its incomparably low moving mass and its freedom from the mechanical compression that bedevils electromagnetic cartridges, the Soundsmith Strain Gauge cartridge is an incomparably good tracker. Indeed, he says, the Strain Gauge is kinder than most cartridges to one's records, a claim he illustrated by playing for me a record that not only had lots of bass, treble, and sheer juice, but that exhibited not a single tick or pop. Except it wasn't a record—it was a half-speed–mastered lacquer. While a typical lacquer can't be played more than a few times before audible groove damage sets in, Ledermann said that *this* lacquer had been played approximately 150 times—but only with a Soundsmith Strain Gauge.

The rest of that playback system seemed similarly impressive—and, with the exception of the VPI turntable and Schroeder tonearm, all components were designed and made by Ledermann. The cartridge was the Soundsmith Strain Gauge Signature Series SG-810 ($33,900), the partnering preamp for which also includes line inputs, manual and remote controls, a tape loop, and automatic cue-up muting. Power amplifiers were a bridged pair of Soundsmith HE-150 zero-feedback, 200Wpc MOSFET monoblocks ($43,000 each), and loudspeakers were the compact (14" tall), two-way Soundsmith Monarchs ($4000/pair), mounted on Soundsmith Versa-Stands ($900/pair). The sound lacked the casual, natural forcefulness I hear through my Altec horns, and when I played an LP I'd brought with me—Country Cooking's *14 Bluegrass Instrumentals* (Rounder 006)—I was surprised to hear a less dry, more echoey sound than I hear at home. But color, detail, scale, and width of frequency range were all very impressive. I may or may not have been correct in attributing to the Strain Gauge cartridge the system's abundance of sonic detail, but there was no doubting the little Monarch speaker's ability to sound surprisingly huge, and to play low-frequency tones I would have thought beyond its reach.

Grace notes

After a bit more listening, Ledermann and I retreated to a local restaurant for some lunch and a more relaxed, far-ranging conversation. We hit upon all manner of hi-fi and music topics, during which I became acquainted with some of Ledermann's likes and dislikes regarding analog playback in general. For the sake of both sound and cartridge longevity, he is an ardent believer in keeping records clean, and prefers radial-slot, vacuum-dry cleaning machines such as those from VPI and Hannl, the latter of which Soundsmith offers for sale. (Earlier in the day, when we were about to play that Country Cooking LP, Ledermann asked if I'd let him wash the record beforehand; having recently cleaned it on the Audiodesksysteme Gläss Vinyl Cleaner, which I prefer, I declined with thanks.) As for stylus cleaning, Ledermann recommends lowering the tip into a gummy, sticky, putty-like substance, which is presumed to retain any and all contaminants, and which can be reused multiple times. (Although Ledermann doesn't specifically endorse it, the Onzow Zerodust cleaner works in that manner.)

Perhaps unsurprisingly, Ledermann also has much to say about cartridge alignment—but is refraining from making detailed comments on the topic until such time as he can deliver one of his next commercial products, the Soundsmith Cartright. This bundle of hardware and software, reportedly in the works for some time, is expected to carry a price in the high three figures. For now, suffice it to say that Ledermann's geometry of choice is Baerwald—and take to heart his observation that "azimuth is a supercritical alignment, but there is a difference between generator alignment and stylus alignment." That's not as enigmatic as it sounds.

But of all the topics that inspire Ledermann's passion and industry, none seems as near to his heart as his favorite charitable enterprise: the worldwide abolition of childhood slavery. To that end, he has created his own record company, DirectGrace Records (www.directgrace.org). The label specializes in direct-to-disc recordings of acoustic music, recorded and mastered by Ledermann on a Neumann VMS70 lathe at the Soundsmith offices; all proceeds go to support such nonprofit organizations as the African Network for the Prevention and Protection Against Child Abuse and

2 Michael Fremer reviewed the Soundsmith Strain Gauge cartridge in March 2011; see www.stereophile.com/content/soundsmith-strain-gauge-sg-200-phono-cartridge-system.

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Neglect (www.anppcan.org). Among the titles presently available are *Flower by the Dry River*, by jazz pianist Elio Villafranca and his ensemble (LP, DG 00106 S), and the eponymous debut album by singer-songwriter Samuel Searle Morris (LP, DG 00103 S). You can buy one or both of them right now and do something nice for the world *and* your ears.

After lunch, we returned to Soundsmith for a little more listening, and to drop in to see their cartridge-repair department—a visit I'd looked forward to all day. Among some phonophiles, Soundsmith is best known for its ability to retip and repair almost any phono pickup you can name, from Allaerts to Zyx—and for a price usually considerably lower than that charged by the original manufacturer. Soundsmith can do this in one of two ways: The repair technician—Ledermann himself, or the affable David Moskowitz—can remove the entire cantilever and replace it with a brand-new cantilever-stylus assembly, with various options regarding the material of the former and the profile of the latter. Alternatively, the technician can leave in place the original cantilever and remove only the stylus shank—usually by dissolving the cement that holds it in place—after which a brand-new diamond can be fitted. Costing between $350 and $650, the latter is Soundsmith's more expensive option, simply because it's difficult to perfectly align—within an opening that may not have been correctly made in the first place—a microscopically small nub of transparent material. By choosing the cantilever-plus-stylus route, the consumer is on the hook for as little as $150, with prices in some cases ranging up to $450.

Even the highest of those prices seems cheap, and may well coax from the cynical that great refrain of American salesmanship: Why pay more? The answer, from some, might be that a new stylus isn't enough to fully reset the odometer on a high-performance cartridge, which may also require a re-magnetized magnet, a thorough purging of magnetically permeable detritus, retorquing of the tensioning wire, and, most of all, new suspension parts. Soundsmith, of course, can do much of that work themselves, although many notable cartridge makers do not make available to other service facilities their proprietary replacement materials—and so they have the advantage. (Just as Ledermann believes the materials he chooses for his cartridges are the best, so may other cartridge makers suggest that they, too, chose for their products the best possible materials in the first place.) But no matter how you look at it, spending $650 or less for a fresh start with a brand-new stylus, especially on a megabuck cartridge, has tremendous appeal.

There was no doubting the little Monarch speaker's ability to sound surprisingly huge.

For reasons almost entirely selfish, I asked: "Can you replace the elliptical stylus of a 12-year-old Japanese cartridge with a spherical tip?"

I received from Ledermann the answer I expected: "Why would you want to do that?" When I pressed him, and explained that I simply prefer the unfussy sound of a spherical tip, he said he would be happy to make the change whenever I wish. Setting my selfishness throttle to full steam ahead, I then offered for his inspection a very old Decca Gray that someone had given me just a few days before. Ledermann kindly put it under his 'scope and, in short order, discovered two things: The Gray's own spherical tip showed no wear whatsoever, and one of its coil wires had come unsoldered, rendering the thing useless; the latter more or less explained the former. In any event, Ledermann offered to try to fix it.

And so, when I left Soundsmith that day, I left a little something behind. Ledermann saw me to my car, and we chatted a few minutes more. Then we shook hands, and I set my Garmin for the trip home. It was afternoon rush hour, and before I reached the Newburg-Beacon Bridge, it had begun to lightly snow—on April 23. It had been a long winter. Now, I wondered if that would ever change. ■

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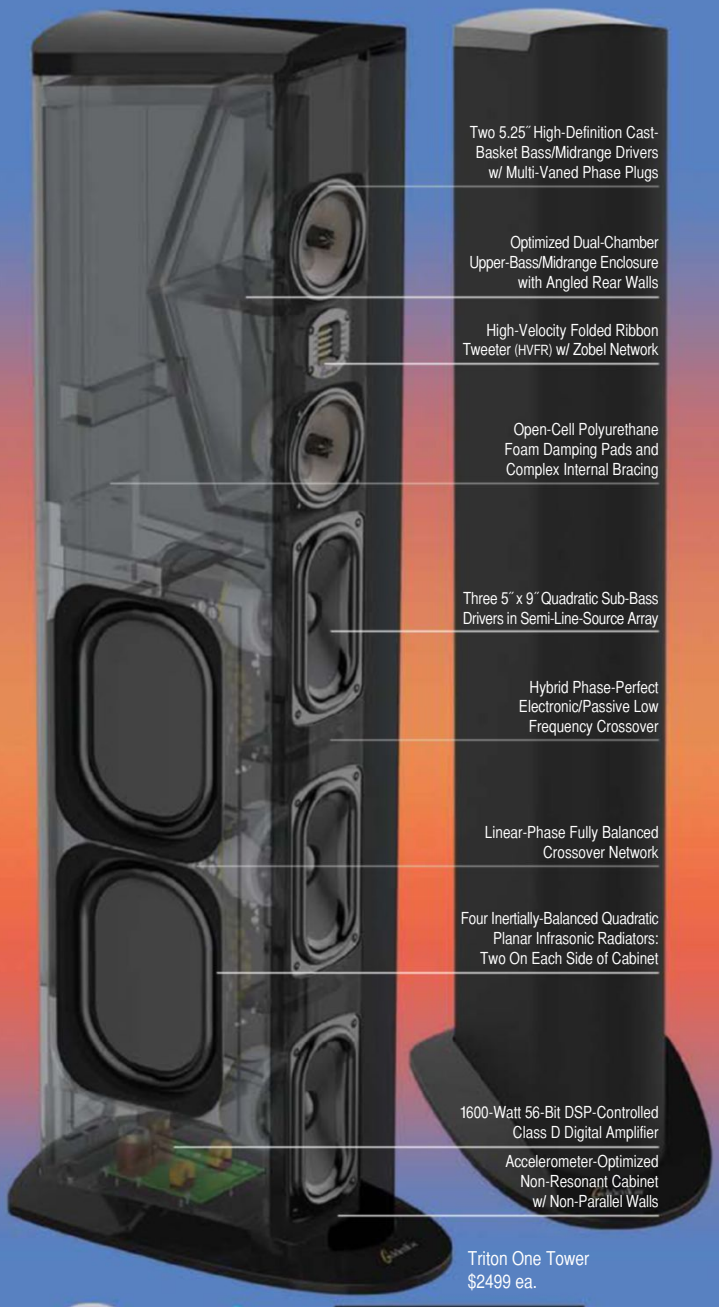

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"A Giant-Killer Speaker … Borderline Class A"
– Stereophile Magazine

Stereophile's Recommended Components Class A rating is their highest and most coveted honor. This year, for Class A Full-Range speakers, there were 12 honorees, ranging in price from $16,000 to $200,000 a pair, with an average cost of $54,000. The fact that of all the 22 Class B Full-Range speakers, only one, the $4999 a pair Triton One, was singled out and praised as, *"Borderline Class A"*, is a very unique and significant honor, totally confirming its unique stature and achievement.

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The Triton One is an evolutionary speaker that builds upon all the advanced technologies that have made the Tritons mega-hits around the world. This new top-of-the-line flagship was engineered to deliver even better dynamics and bass than the extraordinary Triton Two, along with further refinement of all aspects of sonic performance. How well have we succeeded? In the words of HD Living's Dennis Burger, the Triton One delivers, *"… the sort of upper-echelon performance that normally only comes from speakers whose price tags rival a good luxury automobile"*.

Triton One "creates visceral, tangible waves of pure audio bliss"
– Dennis Burger, *HD Living*

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THE FIFTH ELEMENT

BY JOHN MARKS

THIS ISSUE: Wilson Benesch's remarkable entry-level loudspeaker, and music not to be missed!

Wilson Benesch Revisited

Chris Huston is as soft-spoken and unassuming a chap as you would ever hope to meet, a real gentleman of the old school. He also has an amazing backstory. He and John Lennon were close friends at Liverpool's College of Art, and later had "dueling bands" that played at Liverpool's Cavern Club. Huston's band was the Undertakers, with lead singer Jackie Lomax. Like the Beatles, the Undertakers spent time playing gigs in scrappy clubs near the Hamburg docks. However, Huston is not just an asterisk in the music encyclopedias. He co-engineered Led Zeppelin's *II*, earned a Grammy for producing War's *The World Is a Ghetto*, and has produced and/or engineered more than 80 gold and platinum records.

Huston and I were discussing loudspeaker design when he asked a question that brought me up short: "Should a loudspeaker have a personality?"

It took me a moment to collect my thoughts—I had never thought of things in quite those terms. I quickly ransacked my memory for peak audio experiences, then said, "Yes."

Huston's reply is one of the most concise and insightful bits of audio wisdom I have ever heard: "A loudspeaker without a personality is like a song without a hook."

But it sounds as counterintuitive as it is bound to be controversial. Shouldn't we want speakers to sound as neutral as possible—that is, to have no personality? Shouldn't a speaker be the acoustical equivalent of "a straight wire with gain"? In theory, yes.

In practice, however, the laws of physics seem to dictate that, in designing a loudspeaker, to get *this*, you have to give up *that*. You squeeze it *here*, it bulges *there*. Pick your poison. In speaker design, there's always something you give up—even if it's only affordability. We use speakers not in anechoic chambers but in actual rooms of actual houses, to listen not to sinewave test tones, but to imperfect recordings of *music*.

At some point, speaker designers must nail their colors to the mast and let the world hear what *they* think a speaker should sound like. And that's what that speaker's personality is.

But do loudspeakers *need* personalities? I think Chris Huston was right. Too often, the price you pay for neutrality is subliminal disconnection from the music.

For many years, I've been a fan of the loudspeakers made by the British audio company Wilson Benesch. Their speakers *definitely* have their own personality. I first reviewed a Wilson Benesch loudspeaker while a columnist and reviewer for *The Abso!ute Sound*, and how that came about was amusing. As WB's then US importer was packing up his exhibit at the 1999 Consumer Electronics Show, by mistake he put labels with my address on them on the boxes containing the show samples of WB's revolutionary A.C.T. One, the first loudspeaker to have a curved carbon-fiber enclosure, a sloping top, and a baffle of cut steel. And a very nice late Christmas present they were, too.

My comments on the A.C.T. One ran in the August/September 1999 *TAS*, issue 119. I praised it to the skies;

45Hz bass extension from a 10-liter cabinet has JM soundly impressed.

even Harry Pearson himself had to admit that, had he not listened to the A.C.T. One (which at the time cost *ca* $10,000/pair), he would not have been able to "put his finger on" what was not quite right in the midrange of a *ca* $80,000/pair speaker prominently featured in that issue.

Of all the audio equipment I've heard in my three decades as an audio writer, the A.C.T. One and darTZeel's NHB-108 stereo power amplifier tie for first place in terms of my regret at not having bought them. Enlightened Audio Designs' Ultradisc 2000 CD player is in second place. It's telling that A.C.T. Ones rarely seem to come up for sale on eBay or Audiogon.

In 2000 I moved from *TAS* to *Stereophile*, and in September 2004[1] I wrote of the A.C.T. One's successor, the ACT, "The hallmarks of Wilson Benesch's 'house sound' are extremely low distortion, seamless coherence, unfussy easefulness, rounded liquidity of tone, articulate dynamics, and seductively natural imaging and soundstaging." For what many might perceive as American tastes, I also had to note that WB's house sound favored elegant bass quality over bass quantity, and further, that the combination of high tech and high style meant that WB speakers, tier by tier, cost more than those of their built-in-the-US competition.

So, despite a small but committed fan base, a sprinkling of

1 See www.stereophile.com/thefifthelement/904fifth/index.htm.

committed dealers, lots of respect, and some great reviews, Wilson Benesch's presence in the US market has not been uninterrupted. In 2014, WB reconnected with Steve Daniels of The Sound Organisation, importers of Rega Research and other brands. Together, they've been rebuilding WB's US dealer base, starting with the Series II edition of WB's entry-level speaker, the petite, rectilinear, non–carbon-fiber Square One.

I had a wide-ranging conversation with Wilson Benesch's owners, Christina and Craig Milnes, who believe that their company offers to audio-enthusiast music lovers a unique combination of values and benefits. First, their speakers embody 25 years of fundamental research in materials science, much of it funded by Her Majesty's Government. They have in-house control over the complete manufacturing process. Then there's WB's design aesthetic, revolutionary 20 years ago but since picked up by others. Finally, they offer a sound quality they feel is different from that of any other speaker company. "Voicing a loudspeaker is a very personal thing, I think," Craig told me.

Craig Milnes stated that the Square One is the least-expensive speaker WB can make without deviating from their technical, aesthetic, and sound-design heritage—that it is, in fact, at $3800/pair, something of a loss leader. That said, he thinks that the Square Five ($17,000/pair) is their highest-value product, in that all of its technology is borrowed from WB's flagship model, the Cardinal ($115,000/pair). The Cardinal has sold even better than was hoped, especially in Germany, about which the Milneses pronounce themselves "more than happy." Christina noted that the entry-level Square One boasts the Cardinal's quality of veneer, from the same supplier.

Wilson Benesch Series II Square One

Wilson Benesch's Series II Square One is a stand-mounted, dynamic loudspeaker measuring 12.8" high by 8" wide by 11.2" deep and having an internal volume of 10 liters. A vented two-way design, it has a 1" soft-dome tweeter, a 7" mid/woofer, and, on the rear panel, a 7" Assisted Bass Radiator (ABR or passive radiator). Unusually, both ports vent through the bottom panel. Therefore, the speaker enclosure has, at the four corners of its base, metal standoffs. These can be covered with small, compliant, self-adhesive hemispheres (supplied) for installation on a bookshelf or sideboard. Alternatively, the standoffs accept the supplied hefty machine screws, installed upward through holes in the dedicated, all-metal stands. The stands cost $1395/pair, for a total system cost of $5195/pair.

Securely locking a loudspeaker to its stand is a concept I heartily endorse. One doesn't want toddlers to pull speakers down on top of themselves by their cables. Nor does one want an adult guest to inadvertently hip-check one's speaker onto the floor.

In addition to the unusual combination of bottom ports and ABR, the Square One's design includes "critical mass damping pads." A Square One on its own weighs 22 lbs; each hefty spiked stand (available only in black, front spikes permanently attached) weighs 26 lbs. The standard finishes are Natural Cherry Stain; or, in Gloss, Black, White, Birds Eye, Red Birds Eye, Red Tulip, Walnut, Burr Walnut, Ebonized Walnut, and Zebrano; or, in Satin, Maple and Oak. The review pair was in Ebonized Walnut Gloss,

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which looked almost black, except in full daylight.

The fit and finish were second to none. The Square Ones came with the most purposeful steel-framed grilles I have ever beheld. I admired them once, then left them in the shipping cartons. The four speaker-cable terminals are machined in-house from rhodium-plated copper alloy; high-quality jumper wires are supplied for single wiring.

Wilson Benesch's specifications for the Square One include: a sensitivity of 87dB/2.83V/m, on axis; impedances of 6 ohms nominal, 4 ohms minimum; a crossover frequency of 5kHz (first-order bass rolloff, second-order tweeter crossover); a frequency range of 45Hz–24kHz; and a power-handling capacity of "200W, peak unclipped program."

I checked the bass-extension claim by listening to the "Full Glide Tone" from Ayre Acoustics' *Irrational, But Efficacious! System Enhancement Disc, Version 1.2.* At the moment in the tone's sweep upward—it starts at 4Hz—when I believed that the Square One's woofer was actually producing "tone" and not just fecklessly flopping, I hit Pause on the Parasound Halo CD 1's remote control, noted the elapsed time on the CD 1's display, and, using the Amadeus Pro II app, opened the "Full Glide Tone" digital-audio .wav file, and captured a small sample that included about one second to either side of the indicated time. From the "Analyze" pull-down menu I selected "Spectrum." The spectrum I obtained was centered on 44.1Hz. Keeping in mind unavoidable experimental error, I find WB's claim of 45Hz credible—and very impressive for a speaker with an internal volume of only 10 liters.

Listening

For all of my listening, the source (and volume control) was Bricasti's M1 DAC, fed either by Parasound's bomb-proof Halo CD 1 as a transport, or from my iMac running Audirvana Plus. Cardas Clear balanced or single-ended interconnects linked the Bricasti M1 to one of the three power amplifiers I used: Channel Islands Audio's E•200S (200Wpc), and Luxman's M-600A (30Wpc, class-A only) and M-700u (120Wpc, class-A/B).

My review samples of the Square Ones had come from a dealer's showroom floor. Even so, they required a certain amount of break-in (or re-break-in). The rear-mounted ABR's inverted surround was *very* stiff. Even very loud music with significant bass content didn't cause large excursions.

Wilson Benesch does not state a minimum recommended amplifier power, but, with its ABR and claimed 87dB sensitivity—and its characteristic WB trait of favoring bass quality over bass quantity (or extension)—I'd say that 50W would be the bare minimum, and that the amplifier should have great current drive and exemplary damping factor. Doubtless a safer bet would be 100Wpc. Luxman's M-600A (30Wpc) just could not deliver the goods to the Square Ones. But when I switched to the slightly more "modern"-sounding M-700u (120Wpc; see my June 2015 column), what I heard sounded almost like another full octave of bass extension.

In among all that, I experimented with positioning. I moved the Square Ones closer to the front wall than I've placed most speakers in my room, which firmed up the bass without causing any bothersome side effects. I ended up with the Square Ones completely toed in to the listening position, and with the center of each

rear panel 12" from the wall behind it. Placing each speaker a third of the way along the front wall made the distance between the centers of the front panels about 5.5', and resulted in the speakers and listening position describing a slightly elongated isosceles triangle.

The opening movement, *Trauermarsch*, of Mahler's Symphony 5, from Eliahu Inbal's underrated (I think) recording with the Frankfurt RSO (CD, Denon CO79737), had startling dynamics and amazing depth of soundstage, the brasses and percussion sounding surprisingly powerful for a speaker of so small a footprint. That said, while there was a suggestion of bass impact, there wasn't much slam. (One workaround would be to partner the Square Ones with Wilson Benesch's Torus, a passive subwoofer with vertically firing, 18" driver: $6730.)

Standard audio reference recordings of female voices—*eg*, Jennifer Warnes on her *Famous Blue Raincoat: The Songs of Leonard Cohen* (CD, Attic ACD-1227), and Margo Timmins in "To Love Is to Bury," from the Cowboy Junkies' *The Trinity Session* (CD, RCA/Classic RTHCD8568)—were as plangent and as emotionally engaging as I have ever heard them, with, again, remarkable depth of soundstage.

A rare find indeed is an almost-unknown French-Swiss recording of a Tommy Flanagan New York City studio date from 1993, *Lady Be Good . . . For Ella*, with bassist Peter Washington and drummer Lewis Nash (CD, Groovin' High 521 617-2). Flanagan spent many years as Fitzgerald's music director, and all of the songs here are associated with or at least reminiscent of her. For what it is—a multimiked studio recording with an arbitrary stereo perspective—it's a fabulous recording. The playing is soulful, in places elegiac. It took me a while to figure out that Flanagan's slow solo-piano intro to the first of two iterations of "Oh, Lady Be Good!" fit the words to the nursery rhyme "Mary Had a Little Lamb." A message in a bottle, perhaps?

The Square Ones were the perfect match for this music. Their soundstaging abilities made the studio's sound larger and freer, while the music's bass demands didn't outrun the speakers' bass capabilities. The clarity of the sound of Flanagan's piano was exemplary. While the Square One didn't sound "analytical," it also didn't sound like a traditional British BBC-heritage loudspeaker, by which I mean a tailored frequency response with midrange warmth on almost all recordings.

Back to Mahler, this time *Des Knaben Wunderhorn*, for mezzo-soprano Sarah Connolly's luminous, nearly heartbreaking "Urlicht" in the recording by Philippe Herreweghe directing the Orchestre des Champs-Élysées (CD, Harmonia Mundi 901920). Yes, the Historically Informed Performance Practices crowd has caught up with Mahler (though despite the claim of period instruments, A is here 440Hz, not 432Hz). Fear not—it's a stupendous performance. It sounded stunning through the Square Ones, in part because this is the Gustav Mahler of dimly remembered Lutheran chorales played by brass choirs, without any huge side-drum thwacks. Given the Square One's rather high crossover frequency of 5kHz—an octave higher than the norm—I kept listening for some discontinuity between midrange and treble, but heard none. In my estimate, Connolly's performance is as treasurable as Anne Sophie von Otter's. And what a way to end a listening session!

The Square Ones are a premium-priced product, to be sure. However, they have much of the same technology and the same build quality as Wilson Benesch's more expensive models, and provide a smaller-scaled version of WB's house sound: "extremely low distortion, seamless coherence, unfussy easefulness, rounded liquidity of tone, articulate dynamics, and seductively natural imaging and soundstaging." The price tier of *ca* $5000/pair (including stands) is crowded and competitive, but the Square One is a standout performer that I think absolutely deserves a very high Class B (Restricted LF) rating in our "Recommended Components." It very well may be over the line into Class A (Restricted Extreme LF) . . . but John Atkinson will have to decide that after I have sent them to him for measurement.

JAZZ REDISCOVERY OF THE DECADE

Purely by chance, I came across a used CD: *Jo + Jazz*, featuring Jo Stafford (1917–2008), a once-famous singer whose career began in the 1930s, and whose unstinting service entertaining military personnel during WWII earned her the nickname "GI Jo."

Stafford and her husband, the arranger Paul Weston (1912–1996), later became famous for their comedy act Jonathan and Darlene,[2] in which Weston played the piano as though he had two right hands, and Stafford, a trained singer, sang perfectly off-pitch. When I glanced at the recording date for *Jo + Jazz*, I was surprised. I had thought that, by 1960, Stafford was no longer making serious records.

A closer examination left me fairly agog. The list of assisting musicians is stellar: Ben Webster, Johnny Hodges, Ray Nance, Jimmy Rowles, Mel Lewis, Conte Candoli, Russ Freeman, Don Fagerquist. Orchestrations were by Johnny Mandel, from the time before he struck pay dirt with "The Shadow of Your Smile." *Jo + Jazz* was recorded just 16 months after *Kind of Blue*, in the same studio, with the same producer—Irving Townsend—and (I must assume) the same equipment and engineers. Remarkable! Why had I never heard of this?

The CD I discovered was from a label I'd never heard of, Corinthian Records, but *Jo + Jazz* was originally released by Columbia, and therein lies a tale. Despite some truly arresting singing, and great arrangements played by a phalanx of legendary musicians, *Jo + Jazz* seems to have been a flop. Stafford and Weston reportedly thought that Columbia failed to promote the record adequately. That might have been the case. But, in the label's defense, tasteful jazz singing was going begging in 1960, the year of "Yellow Polka-Dot Bikini," with top chart positions going to Elvis Presley,

2 Paul Weston's stage name, Jonathan Edwards, was perhaps the ultimate musicians' inside joke. Übersuccessful lounge pianist Louis Jacob Weertz took as his stage name Roger Williams, the name of the 17th-century Baptist theologian of Rhode Island. Therefore, at the suggestion of Columbia Records producer George Avakian, Weston took the name of Jonathan Edwards, an 18th-century Calvinist from Connecticut. (The 1970s singer-songwriter Jonathan Edwards apparently came by his name honestly.)

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Chubby Checker, the Drifters, and a strong showing for Ferrante & Teicher's "Theme from *Exodus*."

Weston and Stafford eventually acquired the rights to the master tapes, and reissued the LP. (The Corinthian reissue and original Columbia LPs are often on eBay.) Their son Tim Weston, working with engineer Roger Nichols (1944–2011),[3] of Steely Dan fame, later remastered the project for re-reissue, and a darn good-sounding CD it is (Corinthian COR 108CD). The two standout cuts are "The Folks Who Live on the Hill" (Stafford's is now my go-to version) and "Imagination," but the entire album is a treat: a precious moment in time forever frozen in amber. I played some tracks for speaker designer Winslow Burhoe and his wife, and Burhoe remarked on the recording's excellent dynamic range. Yes indeed.

The remastered CD is available from Amazon.com for $12.99; the price includes a free MP3 rip. What's not to love?

3 Roger Nichols had a fascinating career. In college, he studied nuclear physics. Later, his day job was in a nuclear power station, but he moonlighted in a studio he and a friend had built in a four-car garage. They took whatever work was available, including radio commercials. Nichols may have been the first to record Karen Carpenter, whom he used for voiceovers.

LOLLIPOPS BEYOND DELIGHTFUL

Composer Ottorino Respighi (1879–1936) was also a pianist and a string player. He played viola in the orchestra of Russian Imperial Theater in Saint Petersburg during the seasons of Italian opera there, and later played first violin in an Italian string quartet. During Respighi's formative years, the musical life of Italy was "all opera, all the time." However, during Respighi's sojourn in Russia, he became a composition student of Nicolai Rimsky-Korsakov's, from whom he learned the power of orchestration.

Respighi's fame rests on his Roman Trilogy of orchestral sketches: *Pines of Rome, Fountains of Rome,* and *Feste Romane,* recordings of all of which have been longtime audiophile favorites. I saw a favorable notice of a recent Respighi recording by an orchestra unfamiliar to me, Belgium's Liège Royal Philharmonic, and a conductor I'd barely heard of, John Neschling, who turns out to be a grandnephew of Arnold Schoenberg's. The music, too, was less than familiar; I'd never owned a recording of either *Impressioni Brasiliane* or *La Boutique fantasque,* the latter Respighi's ballet score based on Rossini tunes. So I requested a review copy (SACD/CD, BIS 2050).

Well, SACD fans, it's again time to vote with your wallets. The sound is *beyond* stupendous—the crystalline triangle strokes in *Notte Tropicale,* from *Brazilian Impressions,* just float, shimmering above the atmospheric strings. The Liège orchestra sounds like a world-class ensemble, aided no doubt by its beautifully preserved, Italianate-Eclectic/beaux-arts Philharmonic Hall, built in 1887. I cheerfully admit, however, that my impressions of the sound are dependent on Respighi's magical evocation of Rio de Janeiro at twilight—all sinuous, airy, impressionistic suggestions and pastel colorings. Beethoven from the heaven-storming end of the dynamic range *Notte Tropicale* is not.

Neschling grew up in Brazil, and I can't imagine more polished, more idiomatic performances of this music—or more vivid sound. If you love *Pines, Fountains,* or *Festivals,* you owe it to yourself to grab this SACD/CD. ■

John Marks (john.marks@sorc.com) loves pausing to listen.

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GRAMOPHONE DREAMS

BY HERBERT REICHERT

THIS ISSUE: Herb takes the smallest Magnepan speaker out for a spin around his music collection.

Dreaming of Maggies

I believe in historical *consensus*. I believe in hi-fi gear that reveals its quality slowly and holds it value over time, irrespective of technology. I have never bought into the superiority of one technology over another. The art of audio engineering lies in the wisdom and vital energy of the designer's viewpoint within whatever technology he or she has chosen to work with. I call this the designer's *qi* or *chi*. Every audio product's most important specification is *who* created it, followed by the *spirit* in which it was fostered—and, of course, *how* it was made and *what* it is made of. These are the determining factors for long-term audio relevance.

Whenever there is something fundamentally correct in a designer's approach, the chances become extra good that the products of his or her efforts will reveal to a wide range of listeners *fundamental musical truths*. And for me, the best thing about musical truths is that they never change or go out of fashion.

Magnepan, Inc. is a perfect example of an American audio manufacturer that, since 1969, has based its considerable reputation on creating a series of innovative loudspeakers; that have never gone out of fashion. Magnepan's founder and chief designer, Jim Winey, has parlayed a fundamentally sound design philosophy into an evolving series of musically satisfying planar-magnetic dipole speakers. Magnepan's latest model, the .7, is a full quasi-ribbon design of elegant appearance that consistently reveals many of those *fundamental musical truths*.

Left: The Magnepan .7. **Above:** the Magnepan DWM woofer.

Me, Dad, and Jim

I spent the fun part of my childhood on the family farm in the big woods near Clayton, Wisconsin, about 57 miles east-northeast of White Bear Lake, Minnesota, home of Magnepan. Clayton winters are long and chilly, and if you don't leave the area, you have few decent choices for employment. You can work at the Moon Lake Tavern, trap minnows and leeches, or travel to Minnesota and work at the factory of Anderson Windows & Doors. Better yet: like Magnepan's founder, Jim Winey, you can get a job at Minnesota Mining and Manufacturing, aka 3M.

Like Winey, my dad started out as a trapper. Also like Jim, I worked for John Deere & Co. in Des Moines, Iowa. I've always been into photography, and again, just like Jim Winey, I built my first enlarger from an old Kodak bellows camera, some black pipe, and a coffee can. Obviously, I have a strong urge to tell endless stories about Magnepan's founder, the northern lights, and fishing for walleye in the Land of 10,000 Lakes, but suffice it to say: I have a lot in common with Jim Winey, and a lot of admiration for what he and his company have accomplished.[1]

And now . . .

Magnepan speakers have evolved slowly over the last 46 years, each new model seeming to improve on the speed and transparency of its predecessor. Each change in size has enabled Jim Winey's designs to interface with a wider range of users and environments. However, because I'm a slow learner, it has taken me four decades to grasp the full beauty of what Magnepan's unique transducers can do. Now older and more experienced, I'm excited to share what I've discovered.

At 54¼" high by 15¼" wide by only 1¼" deep, Magnepan's new .7 is smaller than the 1.7 and bigger than the earlier MMG. When I heard a pair of .7s at the 2015 Consumer Electronics Show, they made me beg and plead. I stuck out my lower lip. I pouted. At last, Magnepan's forever national sales manager, Wendell Diller, reluctantly agreed to loan me a pair. I had to promise I'd send him one of Dad's old muskie lures.

Compared to most other speakers, the best thing about the elegant .7 is that you can store its boxes under your bed. The second best thing is the price: $1400/pair. The worst thing: They give you no place to set your record covers, CD boxes, or beverage bottles.

If you're unfamiliar with ribbon or quasi-ribbon speakers, just imagine a cone-dome-and-wooden-box speaker run over by a steamroller. The result is only 1¼" thick. Your woofer cone and voice-coil—imagine a paper or plastic

1 See David Lander's interview with Jim Winey in the January 2003 issue, Vol.26 No.1: www.stereophile.com/interviews/103winey/index.html.

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funnel with some magnet wire coiled around its stem—have been transformed into an extremely thin sheet of Mylar with an equally thin grid of aluminum foil or wire glued to its surface. This Mylar sheet and conductor lattice weigh only a fraction of your original funnel-and-coiled-wire assembly. Your dome tweeter has been replaced by parallel wires or strips of 0.125"-wide aluminum foil. Your wooden box is now a simple frame of MDF supporting the stretched Mylar.

Funnels and domes, with their wads of copper wire wound around their stems, constitute the magnetically powered *moving masses* of conventional woofers and tweeters. In a quasi-ribbon, that thin, tightly stretched Mylar sheet with aluminum-foil grid serves the same function as your old cone or dome and voice-coil—except that the radically lower mass of the Mylar and foil permit greater acceleration and deceleration of a considerably larger piston capable of moving a lot more air than your little 8" cones. A *pure* ribbon driver further reduces this low moving mass by eliminating the Mylar sheet. (Attaching a ribbon to a sheet of Mylar is what makes such a speaker a *quasi*-ribbon design.)

To move back and forth, the drivers of traditional cone voice-coils, ribbons, and quasi-ribbons all require the *force-over-area* assistance of magnets. Unlike in a cone driver, which has a single, massive magnet surrounding a conical voice-coil, a planar-magnetic driver uses matrices of much smaller magnets that are able to distribute their static forces more evenly over a larger area, potentially making possible more accurate pistonic motion.

Ribbon, quasi-ribbon, and electrostatic speakers (which replace a matrix of permanent magnets by grids of highly charged stators in the last type) are all about *speed*—they achieve their distinctive sonic characters by moving substantial amounts of air quickly and with relatively little effort.

These don't squawk!

Knowing I'd never owned Magnepan speakers, and thinking (wisely, correctly) that I might need some mentoring, Wendell Diller sent retailer Lyric Hi-Fi's Maggie specialist, Igor Pelse, to install the two optional Magnepan DWM woofer panels ($795 each) and position the .7 panels for best tone and imaging. When he left, Pelse instructed me to play a weird recording with a powerful heartbeat to break in the .7s. I didn't have that CD, so I used Bill Laswell's psychotronic *Dreams of Freedom: Ambient Translations of Bob Marley in Dub* (CD, Axiom 524419). Great idea—except, with the speakers playing, I couldn't get any farm chores done. I kept getting sucked into Laswell's wild spatial and imaging effects. This is trance and ambient music at its slip-into-a-spliff-dream best. I know, electronic ambient Marley sounds like a dubious concept—but *Dreams of Freedom* is beautifully lissome and sophisticated. Laswell paints vivid aural pictures with big, morphing, reverberating sounds. Piano chords fade and stretch—front to back, right to left—while bass and drums frame and punctuate the plasma-like vocals. Within minutes, I realized that the Magnepan .7s could image with the best speakers ever, and were going to take my music listening somewhere it had never quite been before. "Everything's . . . gonna be alright . . ."

Creek Evolution 100A

The first record I sat down and listened carefully to was Billie Holiday's *The First Verve Sessions* (2 LPs, Verve VE-2-2503). Tonal balance was extremely good, and the stability of the dual-mono image fell into the *Oh wow!* category. Billie was the *blue* Billie I always love. Likewise, George Jones was still the greatest country singer since Hank and Lefty. But after listening to a few very dynamic, high-resolution Eno and Chesky downloads, I realized that the class-G Creek 100A integrated amplifier that I reviewed in July (base price $2195) couldn't deliver enough current or control to make the Maggies jump and sing.

Hegel Music Systems H160

Wendell Diller told me that Magnepans are most happy with traditional class-AB, direct-coupled, high-current amps. He said I could recognize the best ones by their ability to double their power into 4 ohms from 8 ohms. Well, the Hegel H160 class-AB integrated amplifier that I reviewed in June ($3500) *almost* does that (150Wpc into 8 ohms, 250Wpc into 4 ohms), so I promised Diller I'd use it. During the listening for my review of it in the June 2015 issue, the Hegel H160 easily drove every speaker I threw at it, and I felt certain it would get a strong grip on the hungry .7s.

It did. With the Hegel driving

The first Maggie!

the .7s, each wired in parallel with a DWM bass panel (2 ohms average impedance below 200Hz, 4 ohms above), every type of music was delivered with ease and rock-steady confidence. But the Hegel H160 driving the .7s also delivered a big surprise. I always knew that Magnepan made nice-sounding speakers, but I'd never heard any Magnepans that I thought did delirious boogie or fierce, driving, forward momentum. That was always my main complaint about them. Well, the Hegel and Magnepan .7s proved me totally wrong. Think speeding trucks. Think twin-engine freight trains motorvating downhill. Think dance like a butterfly, strike like a hammer.

The Hegel-Maggie marriage was solid, productive, always lusty, and especially fond of solo-piano recordings, giving the instrument a weighty but balanced sound in the lower and upper registers. With every recording, I thought, *Who needs more than this?*

Vinnie Rossi LIO

Vinnie Rossi's new LIO integrated amplifier ($3280; review in the works), while outputting only 25Wpc into 8 ohms, seemed exactly what Diller was talking about. The LIO is a high-current, class-AB, MOSFET amplifier that, Rossi says, allows for "very strong direct-current delivery" into speaker loads that dip below 8 ohms. According to him, the LIO "cranks out current for stable power output of up to 65 watts per channel into 2 ohms."

Driving the Magnepan .7s without the DWM woofers, the LIO sounded supersweet, tautly detailed, and fantastically musical—but when the

music got going extra strong, the LIO-Maggie pairing became a little limp. At low volumes, I could swim easy in the warm, colorful space of the music, and big classical orchestras and solo guitars retained most of their scale and texture. In fact, the Rossi LIO showed me just how spectacularly the Magnepans could play at low volumes. At higher volumes, however, it was clear that the LIO was not a perfect match.

Simaudio Moon Neo 340i

I've used Simaudio's Moon Neo 340i integrated amp ($4600, review underway) on and off for at least nine months. I love it. Always grainless, dynamic, and blatantly invisible, it has become my reference for what a high-quality contemporary integrated can do and should be. It took perfect hold of the Magnepan .7s in a way that made it abundantly clear that this $1400/pair loudspeaker has not been compromised by its price. Music was presented in the rich, refined manner of a Moët Cuvée Dry Impérial (1943).

Rogue Audio Sphinx

The Rogue Audio Sphinx, my ongoing reference for extreme quality at extreme low price ($1295), played ridiculously well with the Magnepan .7s *and* their DWM bass panels. Bass, boogie, and transient response were better than with any other amp I tried with the Maggies. The midrange was fully fleshed out and exquisitely textured. Highs were open and free of anything but tact, grace, and elegance. This was a system for playing any kind of music, including Janis Joplin, Léo Ferré, and pipe organist E. Power Biggs. The first black disc I tried through the Sphinx's phono stage stunned me like a Taser: Charlie Haden's *The Ballad of the Fallen*, with Carla Bley and Don Cherry (LP, ECM 1248), seemed disarmingly big, robust, vivid, and extremely tactile. Bass was authentically toned. The midrange was more recessed and noticeably less transparent than with the Simaudio Moon 340i, but also more textured. Most important, presence, weight, and body were the best I've experienced in my Bed Stuy bunker. These Maggies did slam, and this record revealed some startling jump factor that I'd never known was there.

Speaking of jump factor, the Rogue Sphinx does in fact double down into 4 ohms, to 200Wpc, and always gets a firm but loving grip on whatever speaker I connect it to. The Rogue-Maggie combo played Led Zeppelin's *II* (CD, Atlantic 82633-2) absolutely effortlessly—with measured 100dB peaks! I have never enjoyed this disc more. The .7s boogied and swung better than any Magnepans I could remember. And you know what? Against all those screaming vocals and bass-drum thunder, the Magnepans also played gently and gracefully, preserving all of Zep's bluesy, lullaby qualities.

Listening to the Animals' version of "The House of the Rising Sun" (7" 45rpm, MGM K13264), I realized that the Rogue Sphinx is a *lot* better than I said it was in my first-ever *Stereophile* review, in the August 2014 issue.[2] Listening to Brian Eno and David Byrne's *My Life in the Bush of Ghosts* (LP, Sire SRK 6093) through the Rogue-Maggie combo was so exciting, so intense, so *inexpensive* that I have no choice but to steal a description from a Facebook friend: "It was like having sex in the back seat of a stolen car!"

Above left: Tensioning the Magnepan diaphragm material. **Right:** glueing the voice-coil to the diaphragm.

The Goldilocks Conundrum

Without one of the optional DWM bass panels, the .7s could occasionally sound a little bass shy—but the microdetail, transient attack, transparency, and soundstaging were always spine-tingling, so I could usually ignore it.

Typically, when I first switch from a planar dipole back to a conventional box speaker, I experience bewilderment and disappointment. That didn't happen when I replaced the .7s with the KEF LS50s.[3] Right away—and again—I was impressed by how wonderfully the little LS50s play music. To their credit, the LS50s did not sound more boxy or small or less detailed than the Maggies. The KEFs gave me slightly deeper and even more powerful-sounding bass. *But*—compared to the Magnepan .7s, the LS50s' midrange and lower treble sounded thicker and significantly less transparent, and their treble less extended and refined. The LS50s image extremely well, and a lot better than most speakers—but not as *extremely well* as did the Magnepan .7s.

The biggest difference between these two extraordinary loudspeakers was, first and foremost, the question of amplification. The KEF LS50 is easy to drive, and plays well with a wide range of low- to medium-priced amplifiers. It's fine with my 22Wpc Line Magnetic tube amp. The Magnepan .7, on the other hand, requires a current-generating machine like the Hegel H160 or the Rogue Sphinx. *But*—one of the most beautiful things about Jim Winey's design is that it's not a cheaper (*ie*, compromised to meet a low price point) version of their flagship model—it's just a *smaller* version. All the way through my listening for this review, I speculated that the .7 might simply be the "just right" Magnepan size, and in no way a compromise. Therefore, an aspiring audio perfectionist might feel it reasonable—might even feel *entitled*—to spend bigger money on a superlative amp. I also listened to the .7s driven by Pass Labs' XA100.5 monoblocks ($16,500/pair). I felt I was remote viewing in Valhalla!

The second difference was in the bass. I could very happily live with the Magnepans *sans basse supplémentaire*. But I really love my Charlie Haden and Manuel De Falla and Wendy Carlos and Philip Glass *with* the DWM panels. The DWMs hand off to the main speakers at 200Hz, which is deep into the region of male and female voices. That makes positioning the DWMs slightly tricky, potentially labor intensive—and entirely worth the effort.

I encourage all interested parties to begin with a pair of .7s alone. Move them closer to you and farther from the front wall until you like the tone

2 See www.stereophile.com/content/rogue-audio-sphinx-integrated-amplifier.

3 See www.stereophile.com/content/kef-ls50-anniversary-model-loudspeaker.

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quality. Toe them in so that their tweeter axes cross at the tip of your nose. Adjust the distance between the speakers and the positions of the tweeters (along the speakers' inside or outside edges) to suit your needs for instrumental weight, treble delicacy, and soundstage size.

After you've gotten the .7s zeroed in—*ie*, when the tone is right and the imaging is laser tight—be prepared to change those positions again when you add the DWMs. With the DWM, positioning is all about getting right the hyper-important 60–300Hz region. I recommend beginning with the DWM panel about 1' behind or 1' in front of the main drivers, then rotating the woofer on its own axis—which simultaneously adjusts level, power, *and* crossover frequency. Be prepared to hear substantial changes in tone and transparency by moving the woofer (and/or the main speakers) as little as 2". When pianos and voices sound right—you got it.

The moral of this story is . . .

The Magnepan .7 costs $1400/pair. The Rogue Audio Sphinx costs $1295. Throw in some AudioQuest Type 4 speaker cables ($124/10' pair) and a pair of AQ's Golden Gate interconnects ($68.99/meter pair) and you have a complete, made-in-America, very audiophile-grade, stereo for less than $3000 (not including source). Add the DWM bass panels ($795 each) and you're still under $3700, but you're experiencing big, punchy, unbelievably refined reproduction of music. Add a Pioneer PLX-1000 turntable ($699), a Shure SCA35C ($75) cartridge, and a Schiit Bifrost ($349) or Halide HD ($499) DAC, and you have full-tilt, stupid-good, play-your-tunes-with-all-the-big-boys, major pro-style audio system . . . for under $5000! By the standards of high-end audiophiles, that's borderline Class A sound at only a few clicks above curbside-junk prices. ■

Herb Reichert (Stletters@sorc.com) fills his Bed-Stuy man cave with exotic audio equipment, both ancient and modern.

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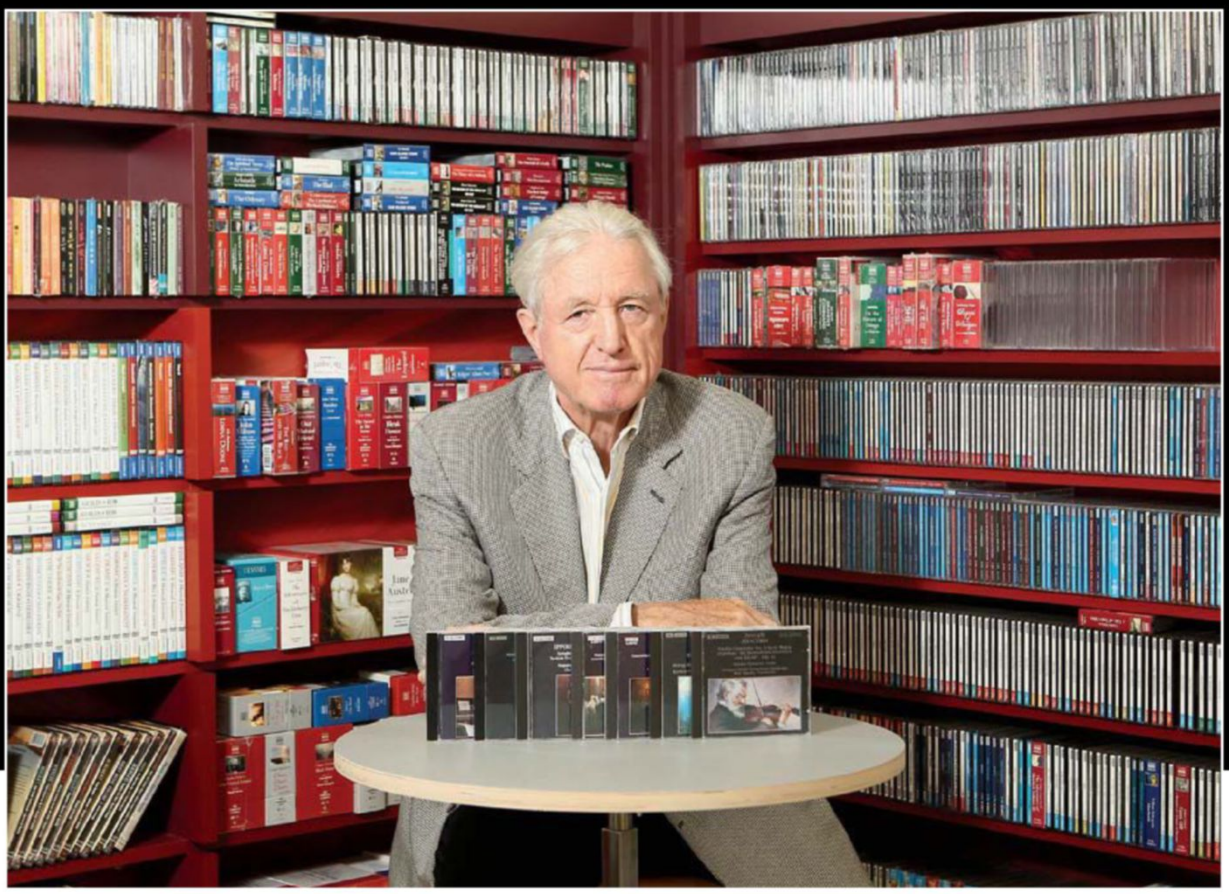

NAXOS WORLD

KLAUS HEYMANN ON PANDORA, SOUNDEXCHANGE AND WHY CDs ON DEMAND IS HIS FUTURE. BY **ROBERT BAIRD**

Is it because no one takes pot shots at you unless you're on top? Or are the most recent criticisms of Klaus Heymann and his diversified Naxos Digital Services empire on to something more?

To refresh: Heymann, a German entrepreneur who began selling cameras and stereos to American GIs in Vietnam, and later became the Hong Kong distributor of Bose and Studer audio gear, launched Naxos, a classical-music label specializing in budget-priced CDs, in 1987. The label's name is easy to pronounce in any language. Heymann began to build the Naxos catalog—now one of the largest in classical music—by recording young and often unknown artists and orchestras, most from Eastern and Central Europe. Soon, displays of Naxos CDs, all of their covers conforming to a uniform, instantly recognizable design, became to crop up in record stores large and small. Jokes about hearing Beethoven played by the Pottsylvania Radio Orchestra began to circulate among competitors and fans alike. From the very beginning, a more potent argument existed about whether these bargain recordings would degrade

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the standards of young classical listeners: Would hearing Beethoven for the first time as played by a second-rate orchestra dilute the ability of beginning listeners to discern merely good from truly great performances? Then again, at least people were listening.

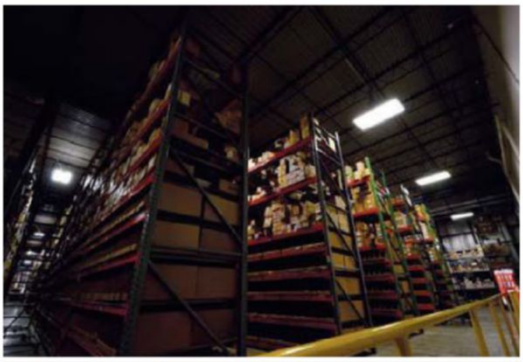
The latest controversy to swirl around Naxos concerns their decision to strike a deal with the streaming service Pandora directly rather than through SoundExchange, the independent digital performance rights organization. In an era when the streaming of recordings is fast draining away what little money remains in the music business, suspicions immediately arose that something nefarious was afoot.

In the March 24, 2015, issue of *Billboard,* Ray Hair, president of the American Federation of Musicians, responded to the Naxos/Pandora deal:

> *Members of the . . . (AFM) continue to be deeply concerned about greed and profiteering in the music industry, at the expense of those who create music. Professional musicians deserve to be treated better. We make all the music, but it seems like everyone else makes all the money.*
>
> *We are alarmed by the agreement recently reached between Pandora and Naxos, the world's leading classical music label, on a multi-year US license for the entire Naxos catalog. We were concerned when their joint announcement was notably silent on any mention of fair and direct payment of royalties to artists.*

Heymann responded in a letter that *Billboard* chose not to publish. That response read, in part:

> *Since its foundation more than 25 years ago the mission of Naxos has been to make classical music accessible and affordable. More than any other record company, Naxos has invested in music education and in recording a wider range of repertoire than any other company, major or independent. At the same time, Naxos has promoted many new and young artists and performing arts groups. Its catalogue of American classical music is second to none, built at substantial cost over time.*
>
> *It is both absurd and offensive for AFM President Ray Hair to insinuate in his recent* Billboard *op-ed that Naxos was motivated by greed and profiteering in its recent deal with Pandora. Writing these comments without any attempt to contact Naxos is irresponsible and reckless, and does not serve musicians well.*
>
> *Naxos remains committed to its artists and is committed to ensuring that all amounts owed for plays on Pandora are reported and paid to them in a timely and concise manner. This deal was done for the benefit of musicians worldwide.*



Are Naxos' warehouses about to go virtual?

Recently, I met Heymann in midtown Manhattan, at the Parker Meridien Hotel, the day after he'd received the Sanford Medal from the Yale School of Music.

"I've looked at all the people [who received the medal] before and they're all eminent or almost eminent musicians."

THE MUSIC LIBRARY IS PROFITABLE. JAZZ IS BREAKING EVEN. THE RADIO, PROBABLY BREAKING EVEN.

Dressed in a gray zip-up vest, black shirt and pants, and new, hipsteresque, low-top tennis shoes, Heymann, with his healthy gray mane and busy activity level, does not look his 78 years. Famed for being a hardnosed wheeler-dealer with a head for figures and a talent for sniffing out future trends in the music business, Heymann is clearly proud that he was into streaming before streaming was cool, or even a glint in the music biz's eye. The back of his business card lists the eight websites, seven of them streaming-based, that Naxos has launched since the late 1990s.

"In 1996, we made our whole catalog available for streaming. It was the very first in the history of the industry. But at that time, it was not paid. It was a marketing tool. The idea was, people listen online, track by track, low fidelity, go to the shop, and buy the CD. It was very expensive, because bandwidth was extremely expensive in '96.

"It remained that until 2002—until bandwidth costs had come down. Also, there were a lot more people with access to the Internet, and that's where we launched the www.NaxosMusicLibrary.com. It was $9.95 a month. That was the first paid streaming service. There was something else before, but it was not from the industry. It was from outside, Classical.com or something. That sort of faded away.

"In 2004, we launched the radio (www.NaxosRadio.com). Way before Internet radio, we had 80 pre-programmed channels. If you want to spend your time listening to guitar and lute, you get the guitar and lute channel. If you like Strauss, there's a Strauss channel. That was paid ($20 a year), but every user who hangs on it uses one stream of our bandwidth. And the people who subscribe, they turn it on in the morning, 9 o'clock, when they get to the office, [and] they turn it off 6 o'clock, when they leave the office. That uses a lot of bandwidth. We never figured out how to make it commercially viable, so it got neglected. Now that bandwidth has become cheaper, we'll probably revive it. We actually hired a radio personality to run it.

"Then we have the video library [www.NaxosVideoLibrary.com] which came in, I think, in 2006. Jazz [www.NaxosMusicLibrary.com/jazz] came in 2005. Then we built our download site, ClassicsOnline.com, which we've now revamped into www.ClassicsOnlineHD.com, with both streaming and downloads.

"There is nothing nefarious [in the Pandora deal]. We own those rights anyway. We have all the rights from our artists. Our contracts with the artists say we have all rights: all rights in perpetuity in whatever format, now known or unknown, from day one. So it's not that we're not paying the artists—the artists are not entitled to any payment from us. Those are the deals in classical music, and most labels are the same.

"We go to the artists and say, 'Look, there are millions sitting there that hasn't been paid. You give us the power of attorney, and we collect your half, and then pay you a share of that in exchange for doing the work.' Because the societies also want to have—it's very onerous what they want. They want an ISRC [International Standard Recording Code] supplied, and artists cannot supply ISRCs so they don't get paid. So now we go with our databases and say, 'Here's the database, here's the power of attorney, now you pay us.'"

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But for consumers—not musicians—the central question about streaming concerns not money but formats. Will streaming eventually kill off all forms of physical media and render record collecting obsolete—that is, owning a personal library of music recordings, be it physical or digital, in a house or in the cloud?

"There are so many ways now to listen to music, and unfortunately a lot of it is free. Streaming takes away from downloads and from physical. There's no doubt—just look at the numbers.

"In 2013, I think Naxos had five titles that sold more than 10,000 [physical] copies. In 2014, not a single one sold more than 10,000. Our best-selling title sold 7000. That shows a dramatic drop in one year.

"[The CD is] not going to die. Even five years from now, we'll be making CDs, but it's going to be in smaller and smaller quantities. Anything where you sell less than 1000 copies does not really recoup the investment of manufacturing, booklets, all that. So if sales continue to drop, and more titles reach that point where you cannot sell at least 1000 or 1500, then it's going to be digital and CD on demand. But 10% of the titles, five years from now, will still sell 3000, 4000, 5000 [physical] copies.

"I think what will probably happen is that, increasingly, we will release only new recordings digitally [downloads]. And we're moving towards manufacturing on demand for those digital-only recordings.

"Right now, digital only is about 25% of all our releases. I think, over the next two or three years, it will probably move to 50%. Five years from now, maybe 75%. What we may see happen in between is that there may be a new high-definition physical format becoming accepted. Maybe data disc, where you can sell high-definition files?"

Throughout our conversation, I never heard Heymann utter the words *listen* in regard to a specific format. I asked him how he listens to music.

"Online. Naxos Music Library, ClassicsOnlineHD. I still have all my wife's CDs at home, because she says she's not an online person. But that's all. I still listen to CDs for new artists, new recordings, but . . ."

With physical formats stuck or declining, and with music of every variety becoming a less important cultural experience for millennials and younger—not to mention that we live at a time when a few hundred in unit sales will land you halfway up the *Billboard* classical charts—the question is obvious: Does the entire business that accompanies the playing and recording of classical music have a future, in this or any other country?

THE RECORD BUSINESS HAS TO SURVIVE THE NEXT FIVE YEARS, UNTIL THERE'S A BUSINESS MODEL THAT WORKS.

"Ninety percent of what we record now loses money, if I count only the revenue from selling CDs and downloads. We make money because [of] this huge back catalog [and] the labels we bought, and we make money from providing services to other people: digital and physical distribution. I think the physical [distribution] is also not profitable anymore, but the digital [downloads] is linked to that, and that makes money. The music library is profitable. The video library is not. Jazz is breaking even. The radio, probably breaking even.

"But it's not dying. The streaming income in the first quarter of this year more than made up for the loss of the download income, but hasn't made up for the loss in CD sales. That means a lot more music is consumed, but we get less money for it.

"At the same time, you reach a lot more people. I just looked at the latest figures we made, and I think last year our digital income was almost $5 million US, excluding CD sales. That's from iTunes, Pandora, Amazon, from whatever. What does that mean? We can close the warehouses tomorrow, destroy all the CDs, close down most of the offices, and [still] have a very good business. But that's us—because we have this huge catalog. It's all available online and is properly exploited. We are running our own platforms. Not many can do that.

"I'm not worried [about classical music] because, look: The classical record business in the United States is about a $100-million-a-year business. The classical music business in the United States is about a $5-billion-a-year business, if you consider [the] Metropolitan Opera budget, ballet budget, orchestras' budgets, and the music schools, etc. We are only [a] tiny little appendix to this whole, and that will never go away. It may shrink from $5 billion to $4.5 to $4 billion, but it will still be there.

"Classical in the US, it was always between 3% and 4% of the total record business. It's shrunk in line with the rest of the business. In Europe, in the best times, it was 10% of the total record business. And I think right now it's 5%, maybe 6%, depending on the market; Germany, maybe England, a little bit higher.

"And streaming in Europe is still not such a big business, except in Scandinavia. I'm not concerned about the classical-music business as a whole. The record business has to survive the next five years, until there's a business model that works. The present business model does not work. The artists don't get paid. Even with the artists not being paid, the record companies still don't make money. That's not a business. And what you get for the music is not enough.

"In the past, we've said we compete with Universal, EMI, and we worry about them. Now we worry about what Google is going to do next, what Amazon is going to do next, what Apple is going to do next. They are the giants. And, frankly, this new development about exclusive content, we had that in the old days, before iTunes, when Warner had this exclusive . . . it's not going to work. Apple can buy Warner tomorrow. Google can buy Sony. It's pocket money for them. What happens then would be an interesting scenario."

And what about Naxos? Any interest from Microsoft? Does Heymann—who says he and his wife now spend summers in New Zealand, to escape the pollution in Hong Kong—have any thoughts of selling and getting away from the constant turmoil of a fast-changing business that may, after all be, be doomed?

"I have offers all the time, but I wouldn't sell Naxos. It's my passion." ■

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JOHN ATKINSON

Ayre Acoustics MX-R Twenty

MONOBLOCK POWER AMPLIFIER

Of the hundreds of product reviews I have written over the years, it is perhaps those of power amplifiers that present the hardest task in defining their worth. This is not because power amps are unimportant. As I wrote in my review of the MBL Corona C15 monoblock, in June 2014, "it is the power amplifier that is responsible for determining the *character* of the system's sound, because it is the amplifier that must directly interface with the loudspeakers. The relationship between amplifier and loudspeaker is complex, and the nature of that relationship literally sets the tone of the sound quality."[1] But because the amplifier's role is so fundamental, it can at first be difficult to determine a given amp's balance of virtues and failings. A paradox.

As well as that MBL, in recent years I have reviewed the Pass Labs XA60.5, in January 2014;[2] the Lamm M1.2 Reference, in April 2012;[3] and the Classé CT-M600, in March 2011.[4] All four amplifiers are relatively expensive monoblocks, though the Pass ($11,000/pair) and the Classé ($13,000/pair) cost much less than the MBL ($25,000/pair) and the Lamm ($27,190/pair). (All prices current as of February 2015.) But one monoblock I *wish* I had reviewed was the Ayre Acoustics MX-R, which, at the time of Wes Phillips's review, in April 2007,[5] cost $16,500/pair. Wes had described the MX-R as being "in many ways—size, energy efficiency, stability—one of the most remarkable performers at any price."

In the brief time I had the MX-Rs in my system, to perform the measurements that accompanied Wes's report, the amplifiers hinted at brilliance. But as they had to be returned almost immediately, I never got their full measure. Then, at the October 2014 Rocky Mountain Audio Fest, Ayre Acoustics premiered an updated version of the MX-R, the MX-R Twenty, to join the KX-R Twenty preamplifier (which I reviewed in December 2014) and the AX-5 Twenty integrated amplifier (reviewed elsewhere in this issue by Art Dudley). All three models celebrate the Colorado company's 20th anniversary, and each features a reworking of the half-century-old "diamond" circuit topology. And, like the AX-5 Twenty, the new version of the MX-R is considerably more expensive than its predecessor: $29,500/pair. I had no choice—I had to ask for review samples.

The Twenty

Like all Ayre amplifiers, the MX-R Twenty is an elegant-looking, zero-loop-feedback, fully balanced design using discrete devices. Its rated power output is 300W into 8 ohms or 600W into 4 ohms, and it has a single balanced input jack (XLR). Other than a discreet "Twenty" badge, the MX-R Twenty is functionally and aesthetically identical to the MX-R; for a full description, I refer you to Wes Phillips's 2007 review.

Double Diamonds

The diamond buffer circuit was first described by an MIT professor, Richard Baker, in 1964. In its simplest form, two pairs of complementary bipolar transistors are arranged as emitter-followers in crosswise symmetry, which, with just four resistors, gives a reliable, wide-bandwidth circuit element with very high current gain, very low distortion, high power-supply rejection ratio, and low output impedance. The downsides are that it uses more devices than other circuits and, as the input is the paralleled bases of a pair of complementary transistors (NPN and PNP), is more difficult to drive.

Art Dudley described this circuit in his review of the original AX-5.[6] Ayre's Charles Hansen discussed it in a posting to the Audio Asylum Web forum in May 2013,[7] in which he admitted that while he didn't know why the diamond circuit sounded better than conventional push-pull topologies, he conjectured that it is the only one in which the two

1 See www.stereophile.com/content/mbl-corona-c15-monoblock-power-amplifier.
2 See www.stereophile.com/content/pass-labs-xa605-monoblock-power-amplifier.
3 See www.stereophile.com/content/lamm-m12-reference-monoblock-power-amplifier.
4 See www.stereophile.com/content/class233-ct-m600-amp-ca-m600-monoblock-power-amplifiers.
5 See www.stereophile.com/solidpoweramps/407ayre/index.html.
6 See www.stereophile.com/content/ayre-acoustics-ax-5-integrated-amplifier.
7 See www.audioasylum.com/forums/amp/messages/18/185962.html.

SPECIFICATIONS

Description Solid-state monoblock power amplifier. Inputs: 1 balanced. Output power: 300W into 8 ohms (24.8dBW), 600W into 4 ohms (24.8dBW). Frequency range: 0Hz–250kHz. Voltage gain: 26dB. Input impedance: 2 megohms. Power consumption: 45W (standby), 120W (operating/no signal). Dimensions 11" (280mm) W by 3.75" (96mm) H by 18.75" (480mm) D. Weight: 52 lbs (23.6kg).
Finishes Silver, Black (add $500/pair).
Serial numbers of units reviewed 14G0129 & '130.
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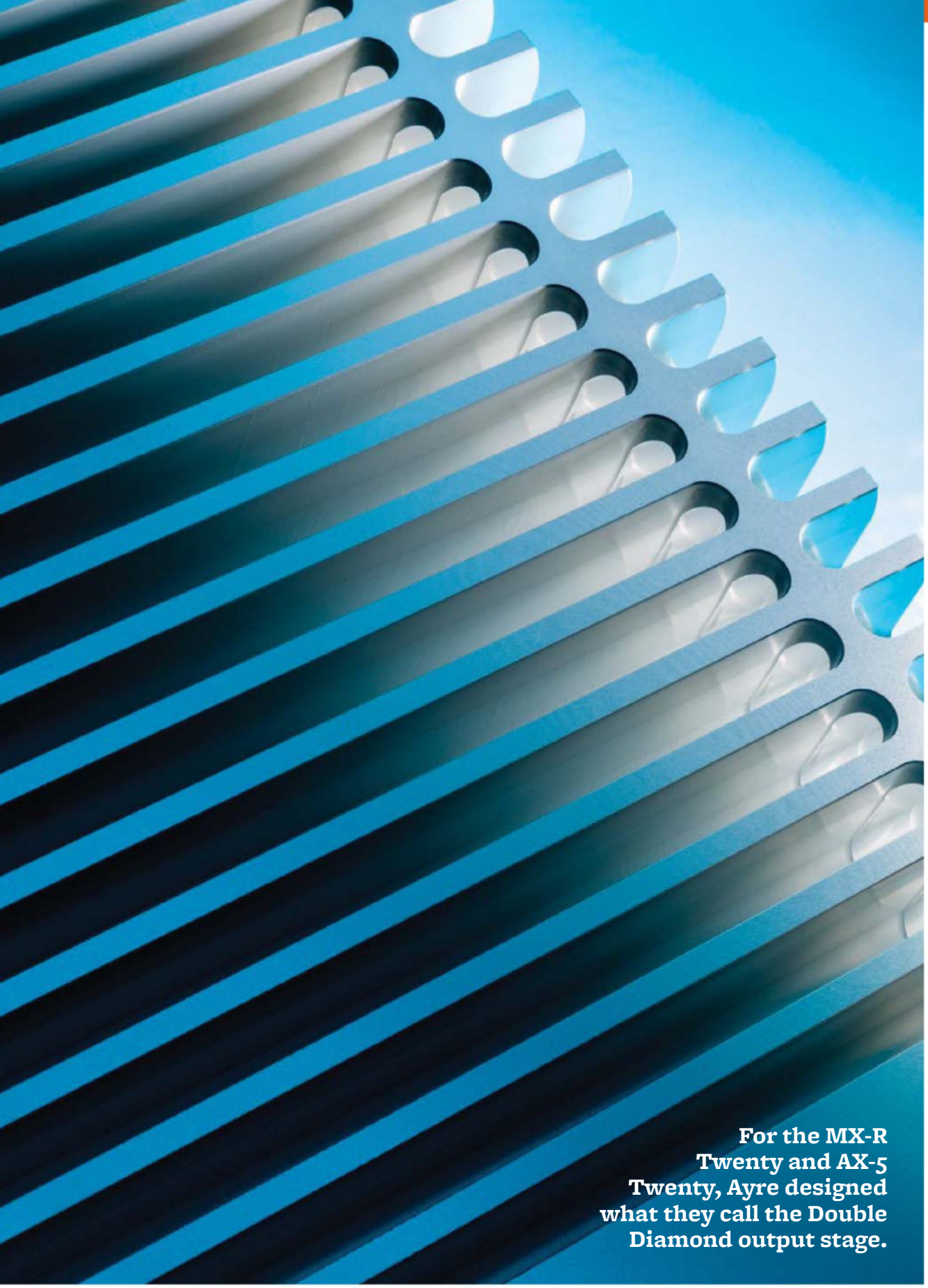
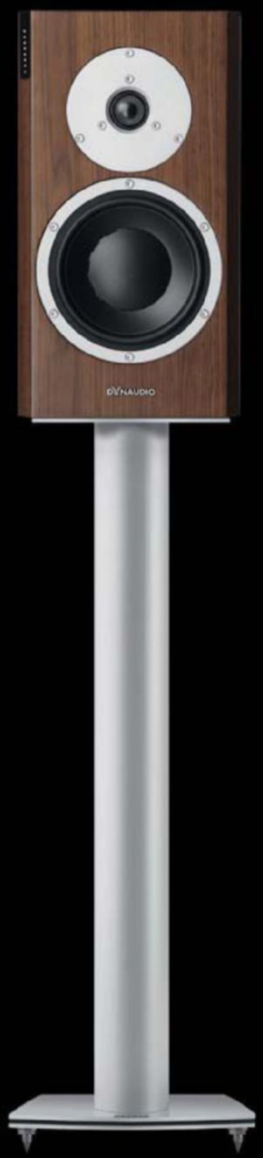
ERIC SWANSON



For the MX-R Twenty and AX-5 Twenty, Ayre designed what they call the Double Diamond output stage.



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half-signals are joined at a single point in the circuit, with no intervening circuitry. Thus, the diamond circuit creates an output that is more faithful to the shape of the input.

When used as a power amplifier's output stage, the diamond circuit runs very hot. So for the MX-R Twenty and AX-5 Twenty, Ayre designed what they call the Double Diamond output stage, to reduce the operating temperature so it could be used in the existing MX-R chassis.

Other features include Ayre's AyreLock voltage regulator in the power supply, which has a second active device that draws additional current to ground when the audio circuit draws less current. "This 'locks' the output voltage of the regulator, regardless of any fluctuations in the load," says Hansen. Like every Ayre design since the original MX-R, the Twenty also uses Ayre's EquiLock circuitry, which is intended to compensate for changes in the operating conditions of the voltage-gain transistors when the current they pass also changes. In the Twenty, however, the transistor load in the EquiLock circuit, which is a current mirror, has been further optimized.

Other improvements over the original MX-R include custom audio-grade resistors while keeping the Cardas binding posts and the proprietary polystyrene capacitors.

Transformation

Owners of original MX-Rs can have them upgraded to Twenty status by returning them to the Ayre factory or to an authorized Ayre distributor. The chassis, transformers, and binding posts of the MX-R are kept; everything else is changed. In North America, Ayre says, MX-Rs purchased from an authorized dealer will receive a new five-year warranty on transformation to MX-R Twentys.

Music

I used the MX-R Twenty with all of the speakers I have reviewed this year (see sidebar, "Associated Equipment"); my auditioning comments and my comparisons with other amplifiers are an amalgam of my experience with all of them and, in light of the thought expressed in the introduction to this review, were compiled over a period of several months.

Looking at my notes, it appears that I played a lot of piano recordings in those months. Many amplifiers have problems with piano. They can correctly reproduce the weight and extension of the left-hand register while rendering the right-hand register too shrilly. Or they emphasize the middle of the keyboard, with too much clangor to the sound. The MX-R Twentys, however, offered a clean tonal window into every recording, no matter how different.

Whether it was Keith Jarrett's extraordinary new album *Creation* (CD, ECM 2450), which was recorded in five different halls in Paris, Rome, Tokyo, and Toronto and has an ultravivid, ultraclose piano image throughout; the concert-hall perspective of Peter McGrath's more lifelike recording of Ivan Davis performing Schumann and Liszt on our "Recording of the Month" for September 1982[8] (CD, Audiofon 72004); or Philip Martin's very distant, "clattery"-sounding ostinato piano in Percy Grainger's *Handel in the Strand*, with Kenneth Montgomery leading the Bournemouth Sinfonietta (CD, Chandos CHAN8377), the Ayre amplifiers maximized the difference of the sound of each piano from the others. They simply stepped out of the way of the music, letting it flow unimpeded. The MX-R Twenty thus proved the perfect tool for reviewing loudspeakers, each model

8 See www.stereophile.com/content/recordings-september-1982-two-audiofon-piano-lps.

MEASUREMENTS

I performed a full set of measurements using my Audio Precision SYS2722 system (see www.ap.com and the January 2008 "As We See It," www.stereophile.com/content/measurements-maps-precision). Before taking any measurements, I preconditioned the Ayre by running it for 60 minutes at one-third the specified power into 8 ohms, which is very much the worst case for an amplifier with a class-B or class-A/B output stage. Like the original MX-R,[1] the MX-R Twenty got hot, the temperature of its heatsink fins reaching 140.3°F (60.2°C) and the top of its case 116.1°F (46.8°C). The THD+noise measured 0.03% with the amplifier cold, and stabilized at 0.0178% with the amplifier hot. While the Ayre's unusual heatsink has sufficient thermal conductivity to be effective for an amplifier of this power rating, the MX-R does need to be used in a well-ventilated space.

The voltage gain into 8 ohms was a little lower than the specified 26dB, at 25.1dB, and the amplifier preserved absolute polarity, its XLR jack being wired with pin 2 hot. The input impedance is specified at a very high 2 megohms. Though it is difficult to measure an impedance this high with any accuracy, my measurement indicated that the input impedance was at least 1M

1 See www.stereophile.com/content/ayre-mx-r-monoblock-power-amplifier-measurements.

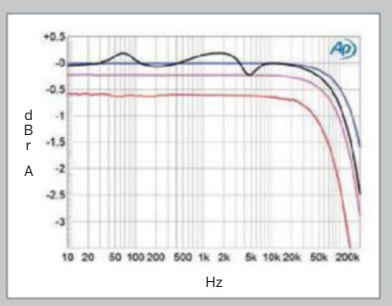

Fig.1 Ayre MX-R Twenty, frequency response at 2.83V into: simulated loudspeaker load (gray), 8 ohms (blue), 4 ohms (magenta), 2 ohms (red) (0.5dB/vertical div.).

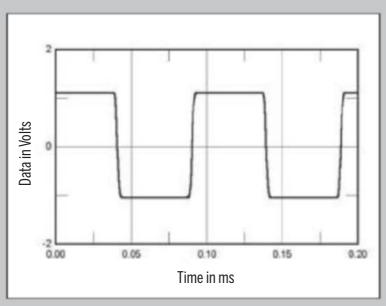

Fig.2 Ayre MX-R Twenty, small-signal 10kHz squarewave into 8 ohms.

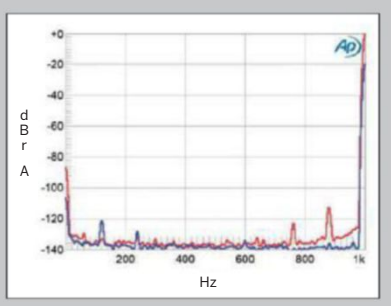

Fig.3 Ayre MX-R Twenty, spectrum of 1kHz sinewave, DC–1kHz, at: 1W into 8 ohms (blue), 100W into 8 ohms (red) (linear frequency scale).

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Ayre MX-R Twenty. I used to love the music of Sibelius, but hadn't played any for too long a time. I reached for Symphony 5, with Herbert von Karajan conducting the Berlin Philharmonic (ALAC files ripped from CD, EMI Studio CDM 7 69244 2). To underpin the work's ambiguous tonality, halfway through the finale Sibelius has the double basses, normally used by composers to provide a solid foundation to the harmony taking place above, playing *divisi* two notes that "fight," E-flat and F. With regular systems, the listener is aware that there is something "sour" in the apparently muddy sound of the basses at this point; a look at the score reveals why. With high-quality speakers driven by the MX-R Twentys, the score is unnecessary—you hear the discord as Sibelius intended: two low notes almost identical in frequency, but far enough apart in pitch to be easily distinguished, and understood as deliberately intended by the composer.

Comparisons

The Pass Labs XA60.5s have been my go-to amplifiers since I reviewed them for the January 2014 issue, primarily because of the spatial magic they work. The soundstage thrown by the Ayre MX-R Twentys was more forward than that produced by the Passes, with foreground objects lying more in the plane of the speakers. In that aspect of their sound, the MX-R Twentys reminded me of Lamm Industries' M1.2 References, whose sound has a similar glow. But the MX-R Twenty's lows were fuller than the Lamm's, and, especially, better controlled and more weighty than the Pass's.

Of the amplifiers I had to hand, the champ at controlling

ASSOCIATED EQUIPMENT

Analog Sources Linn Sondek LP12 turntable with Lingo power supply, Linn Ekos tonearm, Linn Arkiv B cartridge.
Digital Sources Ayre Acoustics C-5xe^{MP} universal player; Apple 2.7GHz i7 Mac mini running OS10.7, Audirvana Plus 1.5.10, iTunes 11, Pure Music 2.0; Ayre Acoustics QB-9 DSD, Bricasti M1, PS Audio PerfectWave DirectStream D/A converters; Ayre Acoustics QA-9 USB A/D converter; dCS Vivaldi digital playback system.
Preamplification Channel D Seta L phono preamplifier, Ayre Acoustics KX-R Twenty line preamplifier.
Power Amplifiers Bricasti M28, MBL Corona C15, Pass Labs XA60.5 (all monoblocks).
Loudspeakers DALI Rubicon 8, GamuT RS7, KEF Blade Two & LS50, Revel Performa3 M106.
Cables Digital: AudioQuest Coffee, Belkin Gold USB, Kubala-Sosna Elation! AES/EBU, Transparent USB (with dCS). Interconnect (balanced): AudioQuest Wild Blue (with dCS), Cardas Clear (with Ayre, Bricasti, PS Audio). Speaker: Cardas Clear. AC: Kubala-Sosna Elation!, manufacturers' own.
Accessories Audio Power Industries 116 Mk.II & PE-1 AC line conditioners (computers, hard drive); ASC Tube Traps, RPG Abffusor panels; Ayre Acoustics Myrtle Blocks; Target TT-5 equipment racks; AC power comes from two dedicated 20A circuits, each just 6' from breaker box.
—John Atkinson

measurements, continued

113dB when A-weighted. The blue trace in fig.3 shows a low-frequency spectral analysis of the MX-R Twenty's output while it drove a 1kHz tone into 8 ohms. The individual random noise components all lie close to –140dB, and while power-supply–related spuriae can be seen at 120 and 240Hz, these lie at a superbly low –121 and –129dB, respectively. The red trace in fig.3 shows what happens when the output power is increased to 100W into 8 ohms. Supply-related sidebands now appear at ±120 and ±240Hz, but these are still at or below –112dB (0.0025%).

Figs. 4–6 respectively plot how the percentage of THD+N in the Ayre's output changes into 8, 4, and 2 ohms. With our definition of clipping as being when the THD+N reaches 1%, the MX-R Twenty comfortably exceeds its specified power of 300W into 8 ohms (24.8dBW). With the wall voltage at 122.4V AC, the Ayre clipped at 360W into this load (25.6dBW) and the distortion remained below 0.02% below 100W. Into 4 ohms the amplifier clipped at 595W (24.7dBW), and into 2 ohms it clipped at 720W (22.55dBW), though the distortion was higher at lower powers into these loads. (The wall voltage was 119.7V at the clipping point into 2 ohms.) This can also be seen in fig.7, which plots the THD+N percentage against frequency at 8.975V, which is equivalent to 10W into 8 ohms, 20W into 4 ohms, and 40W into 2 ohms. However, the increase in distortion into lower impedances was not as great as it had been with the original MX-R.

At low powers, the distortion was

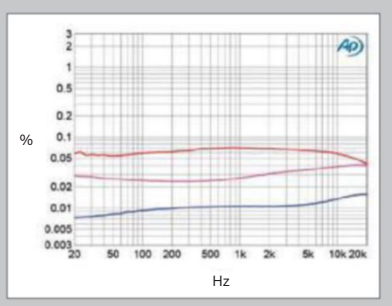

Fig.7 Ayre MX-R Twenty, THD+N (%) vs frequency at 8.975V into: 8 ohms (blue), 4 ohms (magenta), 2 ohms (red).

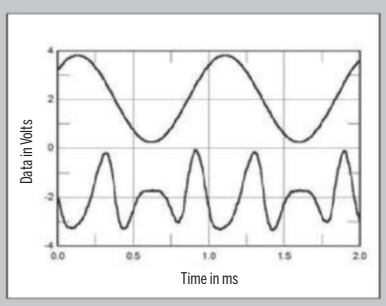

Fig.8 Ayre MX-R Twenty, 1kHz waveform at 6W into 4 ohms, 0.057% THD+N (top); distortion and noise waveform with fundamental notched out (bottom, not to scale).

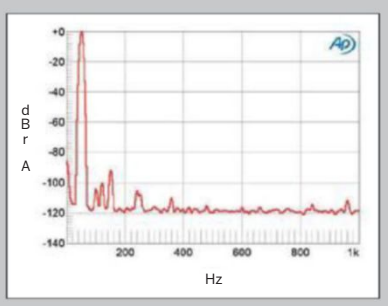

Fig.9 Ayre MX-R Twenty, spectrum of 50Hz sinewave, DC–1kHz, at 1W into 8 ohms (linear frequency scale).

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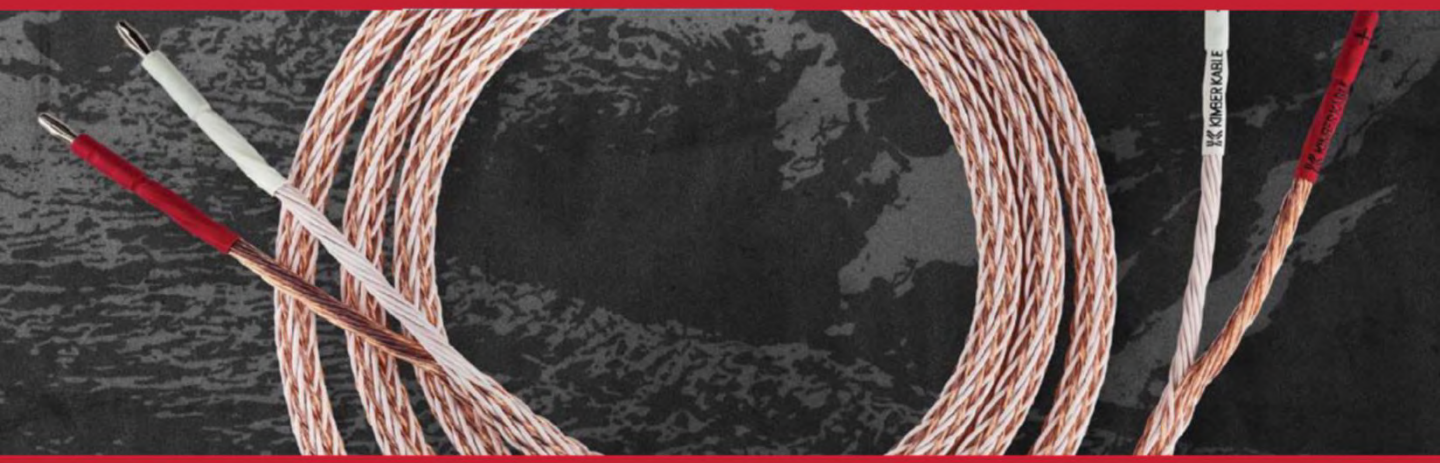

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woofers was the MBL Corona C15. With levels matched to within 0.1dB, the MBL's reproduction of my solo Fender Bass tracks on *Editor's Choice* (ALAC files ripped from CD) sounded tighter but more ethereal than the Ayre's. We're back to that palpability thing. Both amplifiers gave an almost perfect combination of leading-edge definition and tonal weight, but the Ayres made my Fender sound—and feel—more as if it were in my hands.

Compared with the Bricasti M28 monoblocks—which, at $30,000/pair, compete almost head-on with the Ayres in price—the MX-R Twentys did lack ultimate low-frequency extension. As I write in my Follow-Up review elsewhere in this issue, the bass guitar and kick drum in "My Rival," from Steely Dan's *Gaucho* (24/96 ALAC file transcoded from FLAC, MCA/HDtracks B0000868-36), sounded weightier through the Bricastis than through the Ayres. But the M28 has a more polite upper-frequency balance than the MX-R Twenty.

Conclusions

For an amplifier at any price to be able to do everything superlatively well is a big ask. But as I finish writing these words, I'm listening to Bill Frisell's rhapsodic traversal of "Shenandoah," from his *East/West* (ALAC files ripped from CD, Elektra Nonesuch), with GamuT RS7 speakers (review forthcoming) driven by the Ayre MX-R Twenty amplifiers. The jump factor of Kenny Wollesen's snare drum, the growling palpability of Viktor Krauss's double bass, the sense of space surrounding Frisell's stereo-processed guitar, the sheer musical communication—it's hard to envisage how another amplifier could do better than this.

But this performance comes at a price—the Twenty costs nearly 80% more than the original MX-R. Still, it's fair to say that two of the three amplifiers I've tried that get closest in overall sound quality to the Twenty, Lamm's M1.2 Reference and MBL's Corona C15, aren't that much less expensive—and the third, Bricasti's M28, costs slightly more.

All I can say is that if fortune has smiled sufficiently kindly on you that you can write a check for a pair of MX-R Twenty amplifiers without breaking a sweat, you should do so—and then invite me round for regular listens. ■

measurements, continued

primarily the third harmonic (figs. 8 and 9), but at high powers this was joined by both the second harmonic, at almost the same level (fig.10), and by a regular series of higher-order products. These were associated with low-level crossover distortion that was visible on the oscilloscope screen. The original MX-R had been better behaved in both this respect and when it came to high-frequency intermodulation at high powers. While the second-order difference component at 1kHz resulting from an equal mix of 19 and 20kHz tones lay at a low –84dB (0.006%, fig.11), some higher-order products were visible, though it is fair to note that almost all of these lie at or below –90dB (0.003%).

The Twenty version of the MX-R is significantly quieter than its predecessor while offering a slightly different distortion signature. But it still packs a great deal of power into its relatively tiny frame. It is a true high-resolution amplifier.—**John Atkinson**

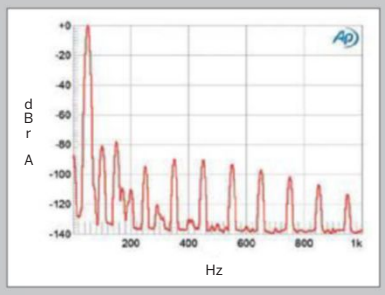

Fig.10 Ayre MX-R Twenty, spectrum of 50Hz sinewave, DC–1kHz, at 100W into 8 ohms (linear frequency scale).

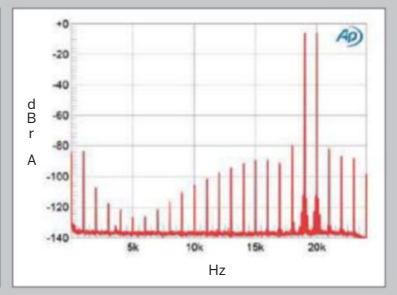

Fig.11 Ayre MX-R Twenty, HF intermodulation spectrum, DC–24kHz, 19+20kHz at 200W peak into 4 ohms (linear frequency scale).

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[origin: latin *radicalis:* root of the issue]

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FRED KAPLAN

Simaudio Moon Evolution 860A

POWER AMPLIFIER

In the May 2015 issue, I fairly raved about Simaudio's Moon Evolution 740P line-stage preamplifier,[1] and now here I am confronting its Moon Evolution 860A power amp. The two are companion models of sorts, with prices of $9500 for the 740P, $15,000 for the 860A—and for much of the time I spent listening to the 740P it was hooked up to the 860A, so some of the descriptions of sound in this review will seem familiar. The two components are both products of the same design shop—Simaudio, Ltd., of Quebec, which has been a prominent brand in high-end audio for 35 years—and are often marketed as a pair, so it should be no surprise if they have a common sound. However, I did try the 740P with other power amps and the 860A with other preamps, to the point where I could make some distinctions between the two, parsing which component contributed what to their sound together. It turned out there were differences in shade and emphasis, if not so much in color or character.

Description and Design

The Moon Evolution 860A is a solid-state amplifier with a dual-mono design and balanced differential circuitry. It pumps 200Wpc into 8 ohms or 400Wpc into 4 ohms, running in class-A up to 5W, then in class-A/B for the rest. The output stages are powered by 12 bipolar transistors per channel, each matched to extremely high standards, resulting in a

1 See www.stereophile.com/content/simaudio-moon-evolution-740p-line-preamplifier.

SPECIFICATIONS

Description Solid-state, dual-mono power amplifier. Inputs: 1 unbalanced (RCA), 1 balanced (XLR). Outputs: 2 pairs binding posts with biwiring option. Power output: 200Wpc into 8 ohms (23dBW), 400Wpc into 4 ohms (23dBW). Frequency response: 10Hz–200kHz, +0/–3dB. Voltage gain: 31dB. THD: <0.015% (20Hz–20kHz, 1W), <0.04% (20Hz–20kHz, 200W). Signal/noise: >106dB (full power). Input impedance: 47.5k ohms. Power consumption: 55W at idle.
Dimensions 18.6" (476mm) W by 7.5" (191mm) H by 17.4" (445mm) D. Weight: 84 lbs (38kg) net, 88 lbs (40kg) shipping.
Finishes Black, silver, two-tone.
Serial number of unit reviewed 4524200.
Price $15,000. Approximate number of dealers: 75. Warranty: 10 years.

Manufacturer
Simaudio Ltd., 1345 Newton Road, Boucherville, Quebec J4B 5H2, Canada.
Tel: (450) 449-2212.
US: Simaudio Ltd.
2002 Ridge Road,
Champlain, NY 12919.
Web: www.simaudio.com.

One pair each of balanced and unbalanced inputs and a pair of speaker binding posts.

This wasn't mere "audiophile" detail for its own sake; it was the sort of detail that enriched the rhythm and flow.

wide bandwidth, minuscule distortion, and a low noise floor (or so claims the owner's manual). Circuits are DC-coupled, reducing phase shift and deepening the bass response. Two custom-built, 500VA toroidal transformers, made of high-quality, slow-rolled Japanese steel, are tightly regulated so that, as the demand for current swells, the supply of voltage dips by no more than 3%, allowing—again, according to the owner's manual—"effortless" dynamic peaks through the most complex musical passages. The output section's high damping factor (specified as 800 for frequencies below 400Hz) "ensures an excellent 'grip' on woofer cone motions." Signal paths are shortened and impedance lowered through use of a four-layer circuit board—two layers for each audio signal, one for the ground, one for the power supply—etched with copper tracings.

Simaudio's Zero Global Feedback, a standard feature in all of its amps since 1998, is claimed to lead to "more accurate" musical tones, "elimination" of phase errors, and improved dynamic range. The 860A also uses Simaudio's proprietary Lynx Circuitry (introduced in 2005), which efficiently distributes power to each active device in the amplification circuit, resulting in greater speed and dynamics.

Finally, the 860A physically resembles other Moon Evolution products, with a sleek, ultrarigid aluminum chassis with curved edges, and thumbscrew cones protruding from its four pillar feet to minimize spurious vibrations.

The Setup

The owner's manual says that the Moon Evolution 860A needs 300 hours of break-in before it sounds as good as it's going to get, and my experience supports that claim. Simaudio also suggests leaving the amp on all the time; I found that any time I turned it off for a few days or longer, it took a few days (but no longer) to warm back up.

MEASUREMENTS

I performed a full set of measurements on the Moon Evolution 860A (serial no. 4524200) using my Audio Precision SYS2722 system (see www.ap.com and the January 2008 "As We See It," www.stereophile.com/content/measurements-maps-precision). As the amplifier is specified as having a maximum power output of 200Wpc into 8 ohms, I preconditioned it before the measurements by running it at one-third that power, 67W, into 8 ohms for an hour. Following that period, the heatsinks were warm, at 110.2°F (43.4°C). The THD+noise percentage at this power level was 0.0126% with the amplifier cold, 0.0115% with it fully warm.

The voltage gain at 1kHz into 8 ohms was higher than the norm, at 31.3dB with both balanced and unbalanced input signals, and the 860A preserved absolute polarity (*ie*, was non-inverting) for both inputs. (Its XLR jacks are wired with pin 2 hot.) The unbalanced input impedance was to specification at 46.3k ohms at 20Hz and 1kHz, dropping slightly to 34k ohms at 20kHz. The balanced input impedances were twice these values, as expected. The output impedance, including 6' of speaker cable, was very low, at 0.09 ohm at low and middle frequencies, rising to 0.11 ohm at the top of the audioband. As a result, the variation in response due to the interaction between this source impedance and the impedance of our standard simulated loudspeaker (see www.stereophile.com/content/real-life-measurements-page-2) was just ±0.075dB (fig.1, gray trace).

The frequency response was perfectly flat in the audioband, and down by 3dB at 120kHz into 8 ohms (fig.1, blue trace). As a result, the M28's reproduction of a 10kHz squarewave was

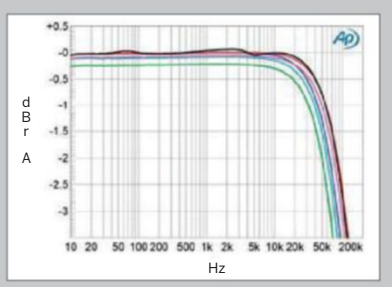

Fig.1 Simaudio Moon Evolution 860A, balanced frequency response at 2.83V into: simulated loudspeaker load (gray), 8 ohms (left channel blue, right, red), 4 ohms (left cyan, right magenta), 2 ohms (red) (0.5dB/vertical div.).

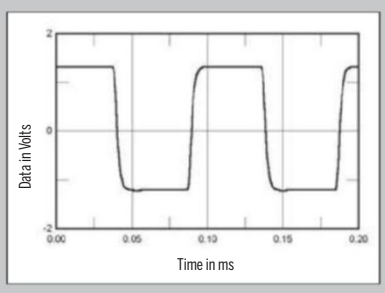

Fig.2 Simaudio Moon Evolution 860A, small-signal, 10kHz squarewave into 8 ohms.

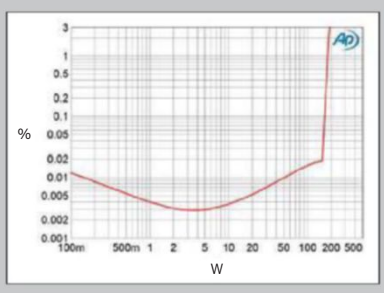

Fig.3 Simaudio Moon Evolution 860A, distortion (%) *vs* 1kHz continuous output power into 8 ohms.

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I did all of my listening through Revel's Ultima Studio2 loudspeakers. For line-stage preamplification, I used the Moon Evolution 740P most of the time, though I occasionally swapped it out for the preamp section of the Moon Evolution 700i integrated amp and the Pass Laboratories XP-30 line-stage preamp.

To compare the 860A with other power amps, I briefly hooked up the 740P to the Pass Labs XA60.5 monoblock amps and to the amplifier section of the 700i, reconfiguring the latter's software to bypass its preamp section and volume knob. I've had the 700i in my system, off and on, for almost five years. I borrowed the Pass electronics from *Stereophile*'s editor, John Atkinson. And I was so smitten with the sound of the Moon Evolution 740P preamp that, soon after writing up my appraisal, I bought the review sample.

Dual-mono construction and two massive, custom-built transformers provide the grunt.

The owner's manual says that the Moon Evolution 860A needs 300 hours of break-in before it sounds as good as it's going to get.

The Sound

In my review of the Simaudio 740P preamplifier, I waxed about its get-out-of-the-way transparency, and the way all the music in a recording was "breathing forth at the same time." That might have struck me as a banal observation until I heard the way it reproduced the *wholeness* of a piano—the percussiveness of the hammers, the dynamic contrasts in the pressure and release of the pedals, the bouquet of overtones wafting in the air, the resonant vibrations of the piano itself—all of these sounds mingling at once in the same place. Ditto for the coherence of drums, and the synchronicity of a band's interplay—all were testimony to the 740P's low-level detail and distortion-free linearity.

I heard this same seamlessness with the 860A power amp; that is, the 860A amplified these details without adding colorations of its own. But I also heard other things that hadn't quite been picked up by the other amps I'd hooked up to the 740P—and that I hadn't heard, to such a degree, with other Simaudio amps. Most noticeable was the bass: subterranean, articulate, complex—and musical, not just a mush of bass tones. From Dave Douglas's *Charms of the Night Sky* (CD, Winter & Winter 910 015-2) I could

measurements, continued

essentially perfect, with no overshoot or ringing (fig.2). Channel separation (not shown) was >100dB in both directions at and below 1kHz, and was still 80dB L–R and 87dB R–L at 20kHz. Though some spuriae were present in the 860A's output at the mains frequency of 60Hz and its harmonics, these were all at or below –130dB ref. 2.83V into 8 ohms. The wide, unweighted signal/noise ratio with the input shorted to ground was 85.7dB (average of both channels), improving to 92.7dB with the measurement bandwidth restricted to the audioband, and to 95.1dB when A-weighted. Despite its higher-than-usual gain, the 860A is a quiet amplifier.

Figs. 3, 4, and 5 show how the percentage of THD+N in the Moon Evolution 860A's output varied with output power into, respectively, 8, 4, and 2 ohms. The downward slope of the traces in these graphs below 10W or so indicates that the actual distortion lies below the already low noise floor at low powers. The gentle rise in THD+N above 10W suggests that the circuit uses only a modest amount of negative feedback, though there is a sharp knee when actual waveform clipping starts to occur.

The Moon Evolution 860A is specified as being able to deliver 200Wpc into 8 ohms or 400Wpc into 4 ohms,

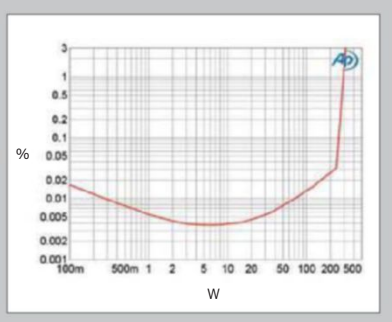

Fig.4 Simaudio Moon Evolution 860A, distortion (%) *vs* 1kHz continuous output power into 4 ohms.

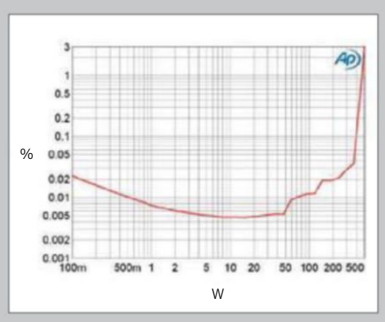

Fig.5 Simaudio Moon Evolution 860A, distortion (%) *vs* 1kHz continuous output power into 2 ohms.

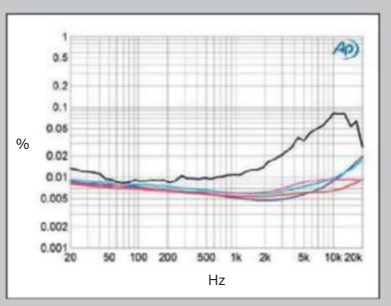

Fig.6 Simaudio Moon Evolution 860A, THD+N (%) *vs* frequency at 12.67V into: 8 ohms (left channel blue, right red), 4 ohms (left cyan, right magenta), 2 ohms (gray).

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clearly hear not just which notes but which strings of his double bass Greg Cohen was plucking: the tautness of the high strings, the thickness of the low ones, and how loosely or tightly he was clamping them on the neck. This wasn't mere "audiophile" detail for its own sake; it was the sort of detail that enriched the rhythm and flow, and that fleshed out the presence of a human musician.

The second big improvement was in the percussive edge of instruments' sounds: the strum of a guitar, the whack of a bass drum, the *sss* of a sibilant. Another example from that Dave Douglas album: In the March 2011 issue, when I compared the Simaudio 700i with the Krell FBI—both high-powered, high-priced integrated amps[2]—I noted that when Douglas's trumpet and Mark Feldman's violin played in unison, both amps allowed me to distinguish the two, each in a different way. The FBI let me hear the transient attack of Douglas's mouthpiece and Feldman's bowing; the 700i let me hear their distinct harmonic overtones and the way that brass vibrations sounded different from vibrating wood and string. I didn't hear those vibrations so clearly through the FBI, nor did I hear those transient attacks so clearly through the 700i. The 860A power amp let me hear both. The overtones were still clearer than the transients, but those transients were clearly, cleanly there.

There was a similarly revealing detail in "My Funny Valentine," from Miles Davis's *Cookin'* (SACD/CD, Prestige/Analogue Productions LAPJ 7094 SA). When the quintet breaks into a faster tempo, the FBI revealed Philly Joe Jones *letting up* on the hi-hat cymbal after tapping it with his stick, an effect that adds an extra layer of rhythm and cool that I hadn't noticed with the 700i (or with many other amps I'd sampled). I could hear this extra layer with the 860A as well. Ditto for "Nuages," the first track of *Chasin' the Gypsy*, saxophonist James Carter's inventive tribute to Django Reinhardt (CD, Atlantic 83304-2). In the comparison with the Krell, I wrote that the 700i didn't let me hear all the subtle rhythms and counter-rhythms tapped out by the triangles, bells, woodblocks, and other percussive bric-a-brac in Carter's ensemble. Again, the 860A did show and tell all, in full flair.

What most impressed me, as it had with the 740P, was my sheer pleasure in listening to music.

I don't mean, by any of this, to compare the Simaudio 860A with any current Krell power amps (which, in any case, I haven't heard). I'm only saying that certain trade-offs that came with past Simaudio amps have—at least with the 860A—largely evaporated.

However, one comparison that I noted back in 2011—between the percussive touch and the gorgeous overtones of Frank Kimbrough's piano on the Maria Schneider Jazz Orchestra's *Sky Blue* (CD, ArtistShare AS0065)—still held true: the 860A still didn't let me hear quite the full body contact with those keys. But, at the same time, the harmonic bloom was fuller still, and the horn sections were more palpable. A minute into the first track, "The 'Pretty' Road," when the woodwinds come in under the blaring brass, I could hear the saxes *blowing*—not just the value of the notes they were

2 See www.stereophile.com/content/simaudio-moon-evolution-700i-integrated-amplifier.

measurements, continued

both powers equivalent to 23dBW. However, figs.3–5 indicate that, with our usual definition of clipping as the power when the THD+N reaches 1%, the Simaudio delivers 180Wpc into 8 ohms (22.55dBW) or 290W into 4 ohms (18.6dBW), both figures taken with both channels driven; or 465W into 2 ohms (20.65dBW), one channel driven. The wall AC voltage was 122.6V with no signal being amplified, and 121.3V at the clipping point into 4 or 2 ohms, so that doesn't explain the slight shortfall in maximum output power.

Even so, the Moon Evolution 860A is still a very powerful amplifier.

Measured at 12.67V—equivalent to 20Wpc into 8 ohms, 40Wpc into 4 ohms, or 80W into 2 ohms—the THD+N percentage remained very low into higher impedances, and the rise of THD in the top two octaves was mild (fig.6). The amplifier was clearly less comfortable driving high frequencies at this power level into 2 ohms, though the THD+N remains below 0.1%. The distortion signature, primarily a mix of the second and third harmonics (fig.7), remains low in level even at very high powers into 4 ohms (fig.8). Intermodulation distortion at a level just below visible clipping on the oscilloscope screen was also low (fig.9), the difference component at 1kHz resulting from an equal mix of 19 and 20kHz tones at 200W peak into 4 ohms lying at –86dB (0.006%).

Other than the slight shortfall in maximum power output, the Moon Evolution 860A lives up to Simaudio's reputation for excellent audio engineering. **—John Atkinson**

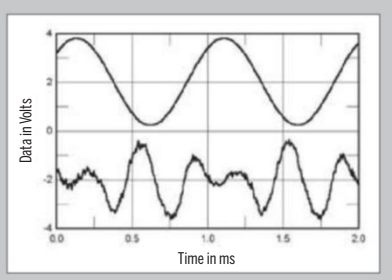


Fig.7 Simaudio Moon Evolution 860A, 1kHz waveform at 15W into 8 ohms, 0.005% THD+N (top); distortion and noise waveform with fundamental notched out (bottom, not to scale).

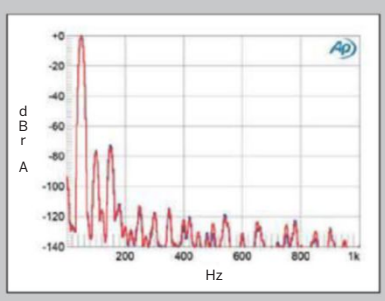


Fig.8 Simaudio Moon Evolution 860A, spectrum of 50Hz sinewave, DC–1kHz, at 200W into 4 ohms (linear frequency scale).

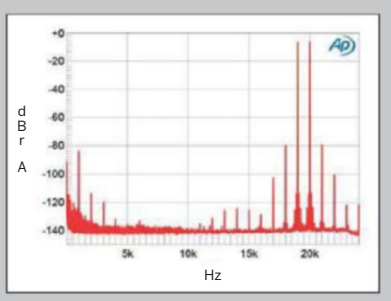
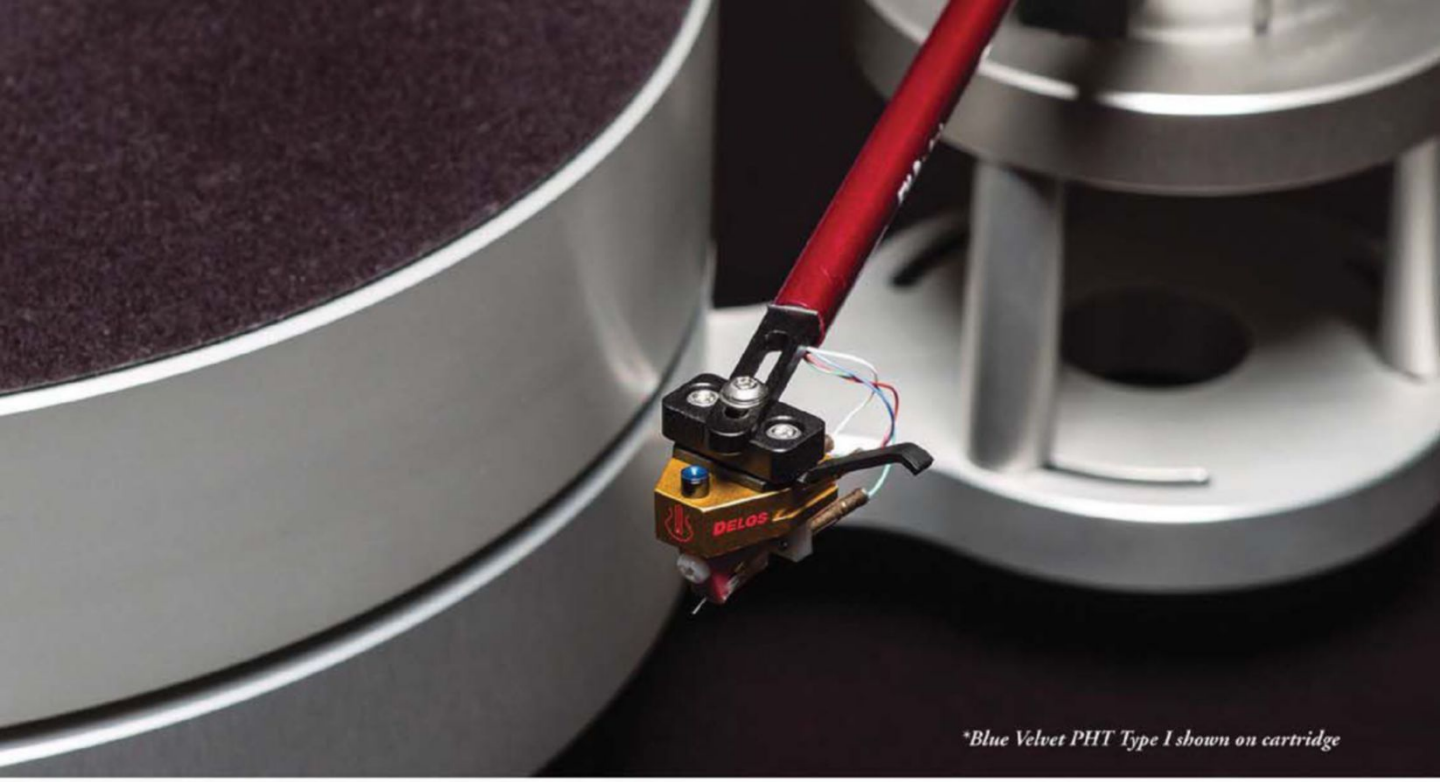


Fig.9 Simaudio Moon Evolution 860A, HF intermodulation spectrum, DC–24kHz, 19+20kHz at 200W peak into 4 ohms (linear frequency scale).



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playing, but the sense of air rushing into the reeds and out the bells—more clearly, and with greater dimension, than I had before.

The clear dynamics of percussion instruments also came through in ways much less subtle. I don't know how many times I've listened to the wondrous Music Matters Jazz 45rpm reissue of Eric Dolphy's classic *Out to Lunch* (2 LPs, 45rpm, Blue Note/Music Matters Jazz MMBST-84163), but I'd never before heard the full range of drummer Tony Williams's rhythms, subrhythms, and counter-rhythms—some boisterous, some quiet and subtle. Ditto Elvin Jones's implosive, virtuosic brushwork in "You Are So Beautiful," from a reissue of *John Coltrane and Johnny Hartman* (LP, Impulse!/Speakers Corner AS-40).

But I fear I'm giving the wrong impression of the 860A. What impressed me most wasn't the subterranean clarity of a bass line or the crisp sizzle of a cymbal (which merely filled a shortfall that I'd heard with previous Simaudio amps). What most impressed me, as it had with the 740P, was my sheer pleasure of listening to music. Nothing stood out artificially; everything was clear and distinct and real, but also balanced.

Listening to Duke Ellington's *Masterpieces by Ellington*, in Analogue Productions' reissue of Columbia Records' aptly titled sonic jaw-dropper (LP, APJ4418; SACD/CD, APJ4418-SA), I could more clearly hear the horn players really blow when they played, and take a breath when they paused, and I could hear the pressure of Wendell Marshall's fingers on the neck of his bass. (Yes, this is a 1950 mono recording, but check it out. If you can find a Columbia original pressing in good shape, and g'luck on that, it sounds better still, though I doubt you'll find one that's anywhere near as quiet as this reissue.)

In Michael Tilson Thomas's magnificent rendering of Mahler's Symphony 9 (2 SACD/CDs, San Francisco Symphony 821936-0007-2), the subtle hesitations of those silky violins, the clarion trumpets, the chirping flutes and woody reeds, the effortless swelling of the crescendos—this is what high-end audio is all about. Switching gears entirely: In Yes's "I've Seen All Good People: Your Move," from the sonically excellent soundtrack album for *Almost Famous* (CD, DreamWorks 0044-50279-2), I heard more space between instruments, more 3D heft to the background singers, more air in the flutes, harder strums on guitar, more constant rhythmic *oomph* in the bass drum—and all of it stayed rock steady as the organ got real loud.

Let's not neglect how the 860A laid out a soundstage. Those clarion trumpets in Mahler's 9th were way, way back there, yet they carved as sharp an image as the chirping flutes and woody reeds upfront—and I mean *naturally* sharp, not Etch A Sketch artifice. From the recent gatefold reissue of *Blue* (LP, Reprise/Rhino 74842), which sounds better than the original in nearly every way, Joni Mitchell's voice seemed to belt, croon, and breathe right in front of me, and all her musicians were nearly visible, to the left, right, and behind her. Wide width, deep depth, 3D imaging: to the extent a recording and the rest of my equipment could toss up this illusion in my living room, the 860A could too.

The comparison

I do have one caveat. Midway through my listening, John Atkinson let me borrow the Pass Labs XA60.5 monoblocks. When I'd reviewed the Simaudio 740P preamp, JA had lent me the Pass XP-30 line-stage preamplifier (reviewing it in the April 2013 issue, he likened it to the proverbial straight-wire-with-volume-knob), to help me gauge how closely the 740P approached the final word in transparency. In some ways, it was an unfair match—the Pass costs 75% more than the Simaudio—but an illuminating one. Though the 740P was—and, I think, still is—a world-beater in its price range (I did say that I bought one, right?), it turned out not to be quite the last word in the universe of preamps; the XP-30 lit up a slightly deeper soundstage, revealed still more air between instruments, and sported a wider palette of colors.

So I thought it might be interesting to put the Simaudio 860A power amp up against a Pass Labs model as well—this one a more even match, as the XA60.5s (at $11,000/pair) are a *bit* cheaper than the 860A ($15,000). The results this time weren't so clear-cut. The Passes exuded a purer midrange: pianos sounded richer, violins silkier, with more extended highs. However, the Simaudio was the champ for dynamics, bass tautness, inner detail, and rhythmic rightness.

I'm not entirely clear what to make of these observations. I also listened to the Pass amps through the Simaudio 740P preamp—so does this mean that the 740P delivered the mid-range richness, but the 860A couldn't amplify it with full fidelity—or was the XA60.5, perhaps by design, embellishing that area of the audioband? I didn't listen to the Passes for long enough to tell.

Another question, at the moment unanswerable: Were the 860A's strengths in bass, dynamics, and so forth intrinsic products of Simaudio's design—or was it simply that the 860A had more watts per channel (200 *vs* 60) and a higher damping factor (up to 800 *vs* 150)? Of course, the latter, too, would be the result of design choices. More probing of this point to come, perhaps.

The Conclusion

Comparisons—especially these tentative, inconclusive ones—aside, my time with the Simaudio Moon Evolution 860A was a deep pleasure. I've now heard several models from this company, and if an audio brand can be characterized by a sound, Simaudio's tends to be neutral, with a slight tilt toward warmth—a sound that appeals to my own taste. The 860A peeled back another thin layer toward neutrality with a warmth that seemed still more natural, and not the side effect of second-order distortion or some other artifact. ■

ASSOCIATED EQUIPMENT

Analog Source VPI Classic turntable & JMW tonearm, Ortofon Cadenza Blue cartridge.
Digital Source Krell Cipher SACD/CD player.
Preamplification Nagra BPS battery-powered phono stage; Simaudio Moon Evolution 740p and Pass Laboratories XP-30 line stages.
Power Amplifiers Pass Laboratories XA60.5 monoblocks. Integrated Amplifier Simaudio Moon Evolution 700i.
Loudspeakers Revel Ultima Studio2.
Cables Interconnect & Speaker: Nirvana. AC: manufacturers' own.
Accessories Bybee Technologies Signature power conditioner (not for power amp, only sometimes for other components); AC power from dedicated 20A circuits; Audiodesksysteme Gläss record cleaner; LAST stylus cleaners. —**Fred Kaplan**

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Falcon Acoustics LS3/5a

LOUDSPEAKER

When all you've ever heard are wooden boxes that shout, it's difficult to recognize their highly accented "voice." Few of us actually notice how miserably distorted *all* loudspeakers are. Don't believe me? Try listening to a recording of your child's voice, the sounds of rattling keys, or an audience applauding.

After you've spent a bunch of time with horns, electrostats, or ribbons, box speakers won't sound "boxy," as many reviewers claim; they'll just sound squawky and . . . *peculiar*. To my ears, the bigger and heavier a speaker cabinet, the more peculiar it sounds. In contrast, petite boxes, like that of Falcon Acoustics' new re-creation of the British Broadcasting Corporation's classic LS3/5a, have a way of sounding closer to solitary drivers hanging in thin air—*ie*, more open and invisible—than ultradamped, 250-lb, tower-monolith speakers, which, on a gray and humid day, can sound an awful lot like moaning, wheezing piles of wood.

This spanking-new incarnation of the BBC's LS3/5a[1] is a highly artisanal labor of love and pride manufactured in Oxfordshire, England, under the technical supervision of KEF's first employee and Falcon Acoustics' retired founder, Malcolm Jones, and the inspired passion of Jones's old friend and Falcon's present owner, Jerry Bloomfield. When I asked Bloomfield how this entire what's-old-is-new-again-let's-do-it-right-this-time Falcon LS3/5a thing got started, he laughed. "Boardroom curries and lots of wine!"

After Jones's wife died, in 2008, he and Bloomfield began meeting at a local curry joint to have dinner, drink wine, and swap audio war stories. While at KEF, Jones had been the senior development engineer behind the B110, a 127mm Bextrene-cone woofer, and the T27, a 19mm Mylar-dome tweeter. Both units were used in the original BBC LS3/5a minimonitor in the mid-1970s. So it's no surprise that their conversations often touched on that legendary British classic and its many BBC-licensed incarnations. Way back in 1982, Jones and Falcon had applied to the BBC for a license to manufacture the LS3/5a, but lost out to Goodmans—who ended up using very tight-spec crossovers supplied by Falcon.

An LS3/5a Timeline

1974: The first pair of LS3/5a Grade II (limited low frequency) minimonitors was created by the BBC Research Department at Kingswood Warren in Surrey, south of London. Looking totally unprepossessing, each had on its rear panel a little strip of red plastic (from an embossing-type label maker) that said "LS3/5a 001" or "LS3/5a 002."[2] The BBC made 20 more pairs of these "prototypes" in-house,

1 See www.stereophile.com/content/praise-classic-bbc-ls35a and www.stereophile.com/standloudspeakers/361/index.html.

2 H.D. Harwood, M.E. Whatton, and R.W. Mills, "The Design of the Miniature Monitoring Loudspeaker Type LS3/5A," BBC Research Department Report 1976/29 (October 1976): http://downloads.bbc.co.uk/rd/pubs/reports/1976-29.pdf.

SPECIFICATIONS

Description Two-way, stand-mounted, infinite-baffle loudspeaker. Drive-units: 0.75" (19mm) Mylar-dome tweeter, 5" (127mm) Bextrene-cone mid/woofer. Frequency range: 70Hz–20kHz. Sensitivity: 83dB/2.83V/m. Nominal impedance: 15 ohms. Dimensions 11.9" (304mm) H by 7.4" (190mm) W by 6.4" (165mm) D. Weight: 11.8 lbs (5.35kg). Finishes Cherry, Walnut; additional charge for Elm, Rosewood, Yew.

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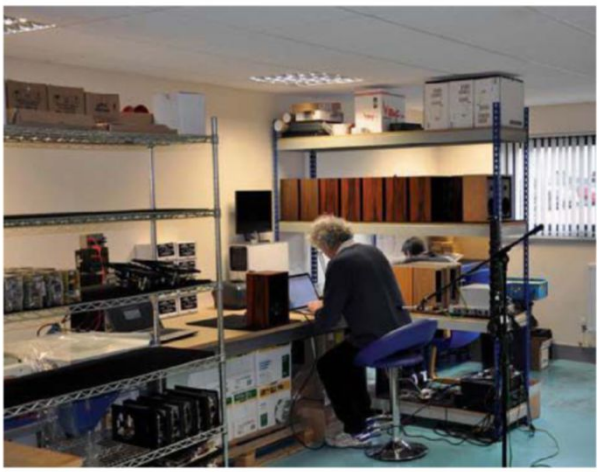
and put them in service in television broadcast vans. They then invited a group of outside manufacturers to apply for licenses to manufacture them.

The BBC issues no more than three manufacturing licenses for the LS3/5a at a time, but during the speaker's long life rights to manufacture it have been awarded to Audiomaster, Chartwell, Harbeth, KEF, Rogers, Spendor, Stirling Broadcast, and now Falcon Acoustics.

According to Trevor Butler, writing in the March 1990 issue of the British magazine *Hi-Fi News & Record Review*, "The concept of this speaker was to suit those BBC environments where monitoring on headphones was not satisfactory and yet there wasn't sufficient room for a 'Grade I' [full-range] monitor. A Grade I monitor can be used for critical tonal balancing of programme material, setting of microphone positioning, etc. Current Grade I monitors are the LS5/8 and LS5/9. A grade II monitor may be used for checking the quality of programme, but balance and [mike] positioning are normally Grade I–checked unless there is no alternative."[3]

British audiophiles immediately grasped the special virtues of this diminutive speaker, the first-ever "minimonitor" to take the bookshelf speaker off the bookshelf and set it on metal stands out in the room. According to *Sound&Vision*'s Mike Trei, "This is when the term 'bookshelf speaker' began to lose its literal meaning." No speaker before it had ever imaged as well. The BBC LS3/5a became the gateway drug that started the whole soundstage/imaging audiophile revolution. It was the speaker that, along with a workforce of high-quality, low-powered British integrated amps, turned all those 250W Pioneer receivers into polished dinosaurs. Simultaneously, it helped precipitate the second coming of tube amps. Now, after 40 years of continuous production, the LS3/5a is established as a timeless classic, and an iconic worldwide cult obsession.[4]



Jerry Bloomfield busy on final Quality Control inspection, unit testing, and pair matching.

1988: As time passed, more and more B110 (SP1003 version) Bextrene woofers began falling off spec, which prompted KEF to redesign the entire speaker using a new B110 mid/woofer, the SP1228. This change required a redesign of the crossover and, suddenly, in 1988, a new, 11-ohm version of the LS3/5a appeared.

2000: KEF stopped manufacturing the T27 and B110 drive-units used in the LS3/5a. In order to continue making licensed LS3/5a's, Stirling Broadcast began using drivers sourced from SEAS and Scan-Speak. Stirling's new mid/woofers were made of damped polypropylene, not Bextrene, and the original T27 Mylar tweeter was replaced by

3 Trevor Butler, "The Little Legend," *Hi-Fi News & Record Review*, March 1990: www.g4dcv.co.uk/ls35a/legend.html.

4 See "The Unofficial LS3/5A Support Site," www.ls35a.com.

MEASUREMENTS

I used DRA Labs' MLSSA system and a calibrated DPA 4006 microphone to measure the Falcon LS3/5a's frequency response in the farfield, and an Earthworks QTC-40 for the nearfield response. The Falcon's voltage sensitivity was 0.7dB higher than that of my 1978 pair of Rogers LS3/5a's, at 83.2dB/2.83V/m. Its plot of impedance magnitude and phase (fig.1) was very similar to that of the original,[1] with the magnitude remaining above 8 ohms from 10Hz to 7kHz. However, it was, on average, about 2 ohms lower in the region covered by the tweeter.

I investigated the vibrational behavior of the cabinet with a plastic-tape accelerometer and the speaker supported on upturned cones, which allows resonances to fully develop. I found a single high-level resonant mode on the side panels at 355Hz (fig.2)—identical to what I found on some of the earlier versions of the LS3/5a.

The impedance peak of 80 ohms centered on 76Hz in fig.1 suggests that 76Hz is the tuning frequency of the sealed enclosure, which is identical to the Harbeth and the 1978 and 1989 samples of the Rogers LS3/5a's that I've tested. With the woofer's output measured in the nearfield (fig.3, black trace below 300Hz), this frequency corresponds with where the driver's output is down by 6dB, but it can be seen in fig.3 that the woofer's response peaks by about the same 6dB in the upper bass. This is the classic "LS3/5a bump," which gives the impression that this little speaker produces more bass than it actually does. However, this bump will make the speaker sensitive

1 See fig.1 at www.stereophile.com/content/bbc-ls35a-loudspeaker-1989-measurements.

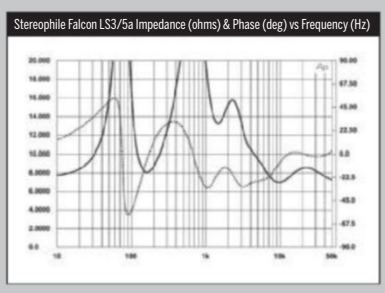


Fig.1 Falcon LS3/5a, electrical impedance (solid) and phase (dashed) (2 ohms/vertical div.).

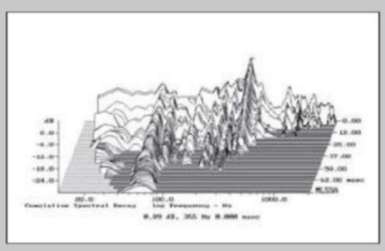


Fig.2 Falcon LS3/5a, cumulative spectral-decay plot calculated from output of accelerometer fastened to center of sidewall (MLS driving voltage to speaker, 7.55V; measurement bandwidth, 2kHz).

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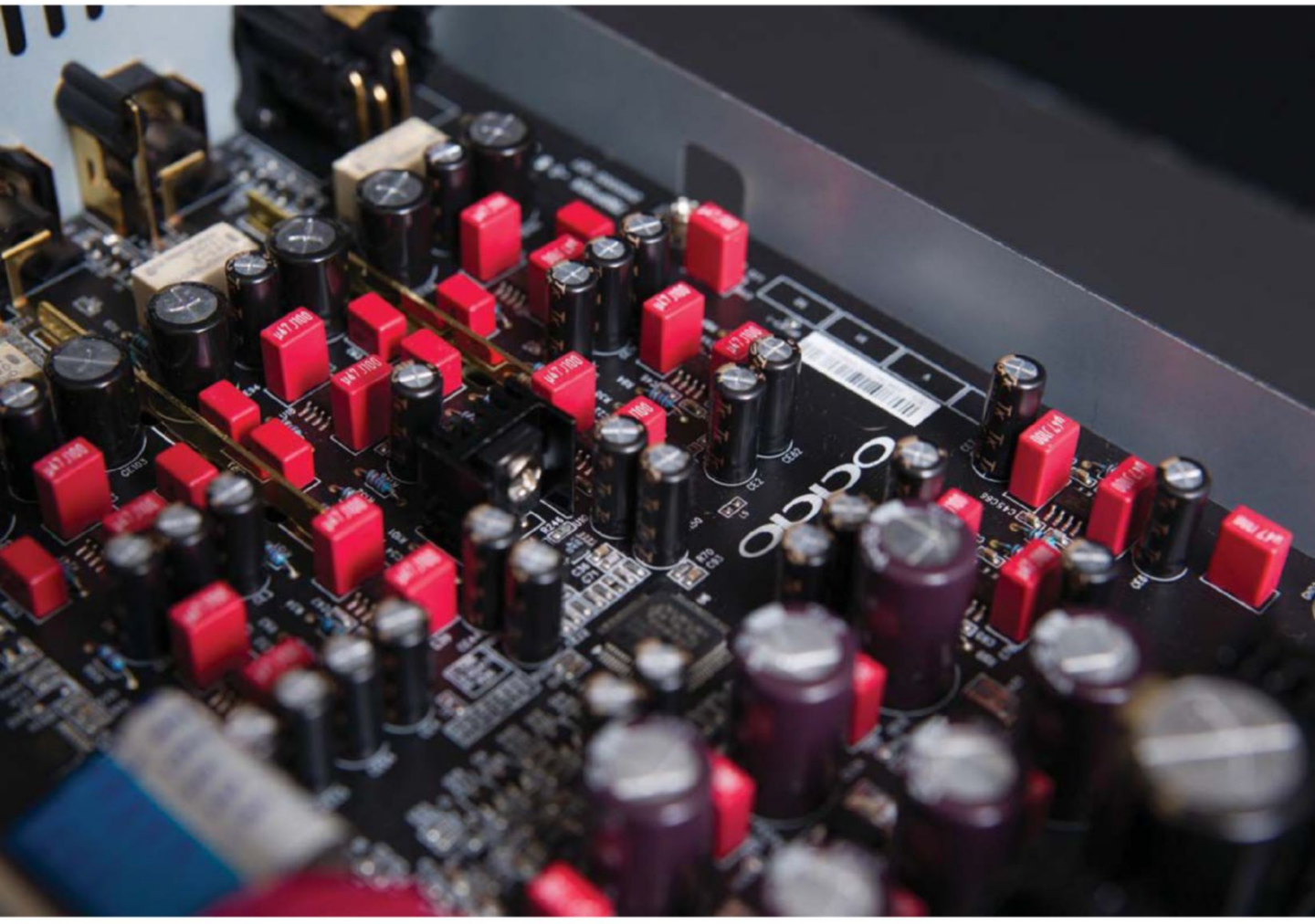

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- Dr. David W. Robinson, *Positive Feedback Issue 77*, Feb 2015

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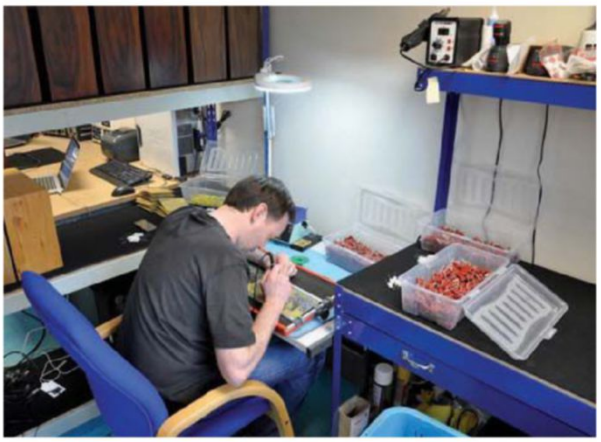
a fabric dome. These radical changes made it necessary for Derek Hughes to develop a crossover that would allow the new drivers to "mimic" the response of the original KEF LS3/5a.

2013: Besides wine and curry, Jones and Bloomfield's post-retirement dinner sessions included discussions of how all the later incarnations of the LS3/5a, while still falling within the BBC's specs, had drifted far from the original materials and construction practices. The new versions may measure the same, but to the ears of Jones and Bloomfield (and me), they don't sound at all the same. (I can see all you double-blind-listening dudes punching in codes and scrambling your F-16s.)

But stop! I need to interrupt this story to tell you that, according to a 2001 listening panel conducted by Ken Kessler and Steve Harris, who published the results in *Hi-Fi News*, NONE of the mass-produced versions of the LS3/5a has come even close to the sonic perfection of the original, red-tape–labeled prototypes.[5]

So . . . after some extra-good curry and more than enough wine, Jones and Bloomfield decided to see if a couple of "old farts" (Bloomfield's description) could hunker down "in a shed" (ditto) and re-create that lost red-label perfection. "We wanted to recapture the original sound *character* as well as the *soul* of the BBC-labeled prototype," Bloomfield told me. Unlike other LS3/5a manufacturers, theirs was not only a quantitative approach of matching the original specs, but also a *qualitative* approach. Jones and Bloomfield wanted to make a locally handcrafted loudspeaker that was better controlled for quality, and closer to the materials used in the original BBC prototypes, than any of the 60,000 or so LS3/5a's that had been manufactured to date.

They began with the B110 woofer, and went to tedious lengths to get the doped Bextrene to produce spectral-analysis results identical to the original's. Then they tried to make a precise facsimile of the first T27 Mylar tweeter. When, in 2013, they applied to the Beeb for their current license, BBC execs stared in astonishment at the "new" drivers and said, "We haven't seen any like these in 40 years!" Duplicating the original crossover, inductors, wooden cabinet, and damping were smaller challenges—Falcon Acoustics has been manufacturing these items to high specs since 1982.



Falcon LS3/5a crossover component pair matching and assembly.

Listening

How deep does the low-end response of the Falcon Acoustics LS3/5a ($2195/pair) actually go? And how accurate are these new Grade II monitors?

5 Ken Kessler, "The Hi Fi News LS3/5A Shootout," *Hi-Fi News*, June 2001: www.g4dcv.co.uk/ls35a/shootout.html.

measurements, continued

to excessive boundary reinforcement when not used in free space.

Higher in frequency in fig.3, the black trace shows the Falcon's farfield response averaged across a 30° horizontal window centered on the tweeter axis. As with all versions of the LS3/5a,[2] a narrow peak in the upper midrange disturbs an otherwise relatively uniform response. Falcon's version of the original's KEF T27 tweeter produces several narrow peaks in the octave above 15kHz, and the top two octaves are shelved up a little. Fig.4, taken with pink noise on the tweeter axis, compares the in-room response of the Falcon LS3/5a (red trace) with one of my 1978 Rogers examples (blue). The low-frequency outputs are identical, but the Falcon's upper-midrange peak is more pronounced and, overall, the 2015 speaker has 2–3dB more output in the treble. This explains the Falcon's greater measured sensitivity.

The Falcon LS3/5a's plot of lateral dispersion (fig.5) looks complex, but this is mainly due to the small dips in the on-axis response tending to fill in to the speaker's sides. However, the broad depression in the presence region off axis might make the speaker sound a little polite. In the vertical plane (fig.6),

2 See fig.3 at www.stereophile.com/content/bbc-ls35a-loudspeaker-stirling-measurements.

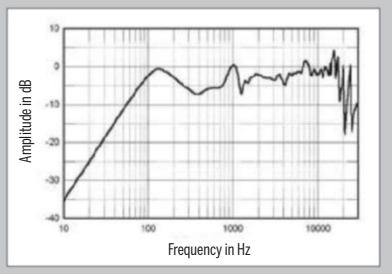


Fig.3 Falcon LS3/5a, anechoic response on tweeter axis at 50", averaged across 30° horizontal window and corrected for microphone response, with nearfield woofer response plotted below 300Hz.

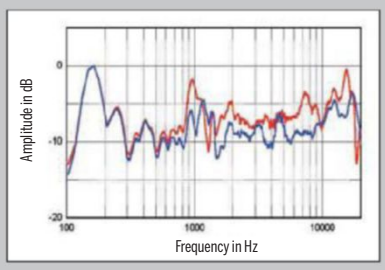


Fig.4 Falcon LS3/5a (red) and 1978 Rogers LS3/5a (blue), in-room responses on tweeter axis, 100Hz–20kHz, at 50" with pink noise (5dB/vertical div.)

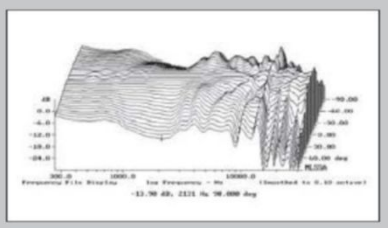


Fig.5 Falcon LS3/5a, lateral response family at 50", normalized to response on tweeter axis, from back to front: differences in response 90–5° off axis, reference response, differences in response 5–90° off axis.

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Wanting to get all such reviewer questions out of the way with the very first record, I figured my best chance was to play *Charlie Haden/Jim Hall*, recorded live at the 1990 Montreal Jazz Festival, in which the late bassist provides the late guitarist with Bach-like counterpoint (CD, Impulse! 002176502). The theme of this astonishing album is Avant-Garde Bass Meets Mainstream Jazz Guitar—it's a twisting, turning, surprise-filled masterpiece that features Haden's bowed, gut-strung bass, Hall's reverberant D'Aquisto arch-top, and lots of applause. By the end of Ornette Coleman's "Turnaround," I knew: The famous LS3/5a "bass bump" was either missing in action, or chose to sleep through this stupefying recording. For better or worse, the LS3/5a's equally famous 1kHz "rise" was present. Bass notes and guitar reverb were rich and hyperdetailed, and reached low enough to be completely satisfying. Most speakers make applause sound like rain on a roof. Through the Falcons, the applause in Montreal sounded as much like the smacking together of hands made of actual bones and flesh as I have ever heard from a pair of speakers. My Falcon LS3/5a journey was off to an auspicious start.

Forget sissy foot tapping. I believe completely in the value of involuntary lap drumming, head bobbing, and ecstatic fist pumping. These actions signify that I am in sync with the music, that I got my ears wide open and my mojo workin'. And when I find myself synced up and delirious, I play the same records over and over. (Yes, I was that neighbor you hated.) I've been playing, over and over, David Byrne's Eno-produced score for Twyla Tharp's *The Catherine Wheel* (LP, Sire 3645), and especially the penultimate two tracks, "What a Day That Was" and "Big Blue Plymouth (Eyes Wide Open)." I used the new Vinnie Rossi LIO integrated amplifier (review to come), and when I got to the "(Eyes Wide

ASSOCIATED EQUIPMENT

Analog Sources Acoustic Signature WOW XL turntable & TA-1000 tonearm, Thorens TD-124 turntable; Abis SA 1.2 tonearm; Ortofon CG 25 DI II, Shure SC35C, Soundsmith Carmen, Zu Audio DL-103 cartridges.
Digital Sources Onkyo Integra DPS-7.2 DVD-A player; Line Magnetics LM502 CA, Halide HD DACs; Mac mini computer.
Preamplification Intact Audio step-up transformer; April Sound GB-1, LFD LE, Sentec EQ-11 phono stages.
Integrated Amplifiers Hegel Music Systems H160, Line Magnetics LM518 IA, Simaudio Moon Neo 340i, Vinnie Rossi LIO.
Loudspeakers Rogers LS3/5a, Magnepan .7, Totem Acoustic Model One Signature.
Headphone Amplifier Schiit Asgard.
Headphones Audio-Technica ATH-M50x, Bowers & Wilkins P5, Music Hall de-be.
Cables Interconnect: Auditorium 23; AudioQuest Big Sur, Cinnamon, Golden Gate. Speaker: AudioQuest Type 4, Auditorium 23, Kimber Kable 8TC. AC: manufacturers' own.
Accessories Sound Anchor stands. **—Herb Reichert**

This spanking-new incarnation of the BBC's LS3/5a is a highly artisanal labor of love and pride manufactured in Oxfordshire, England.

measurements, continued

a large suckout develops in the crossover region immediately below the tweeter axis. In addition, a little more energy is present between 1 and 4kHz between 5° and 10° above the tweeter axis. Both of these factors suggest that the Falcon LS3/5a will work better on a low than on a high stand.

Turning to the time domain, the Falcon's step response on the tweeter axis (fig.7) is basically identical to those of the earlier versions of the LS3/5a, with the tweeter connected in inverted acoustic polarity, the woofer in positive polarity. However, a prominent ripple in the decay of the woofer's step correlates with the pronounced ridge of resonant energy centered just above 1kHz in the Falcon's cumulative spectral-decay plot (fig.8). The LS3/5a has always sounded a touch nasal, but, all things being equal, from this I would have expected the Falcon's version to sound more nasal than the original version. (HR did comment on the response rise in the upper midrange.)

Overall, its measured behavior indicates that Falcon Acoustics' re-creation of this classic British minimonitor has been very successful. The company has resisted the temptation to "improve" the sound quality, but has also managed to re-create what made the speaker great in the first place—unlike, for example, the unauthorized Gini Systems version that John Marks reviewed in December 2008.[3] **—John Atkinson**

3 See www.stereophile.com/standloudspeakers/1208gini/index.html.

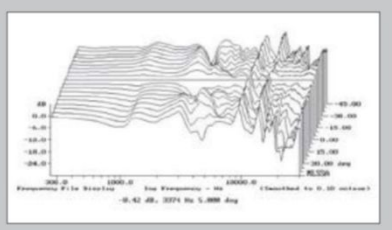

Fig.6 Falcon LS3/5a, vertical response family at 50", normalized to response on tweeter axis, from back to front: differences in response 45–5° above axis, reference response, differences in response 5–45° below axis.

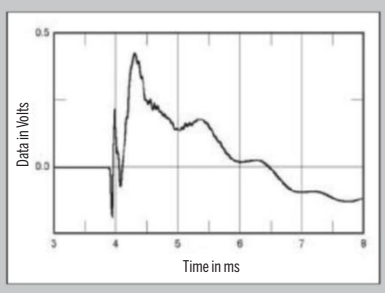

Fig.7 Falcon LS3/5a, step response on tweeter axis at 50" (5ms time window, 30kHz bandwidth).

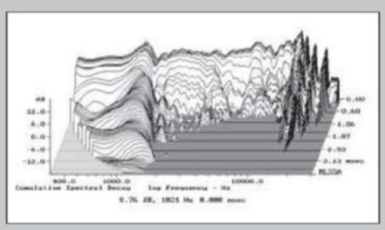

Fig.8 Falcon LS3/5a, cumulative spectral-decay plot on tweeter axis at 50" (0.15ms risetime).

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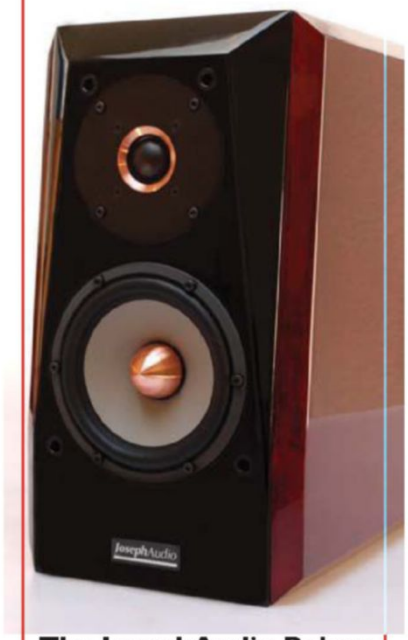

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The Falcon LS3/5a served as a powerful reminder of the joys and beauties that a simple, accurate, easy-to-drive loudspeaker can provide.

Open)" part I babbled like a fiend in a forest. My feet stomped, my head swayed back and forth, my fists pounded—and at the end, when the synths kicked in, my cheeks were soaked with tears. "See the little girl with her eyes rolled back in her head . . ."

These little speakers didn't just open my ears. True to their legendary status as the first box speaker that could actually image, the Falcon LS3/5a's projected—on a spectacularly big, airy soundstage—crystalline images that were sharp *and* sweet. Big orchestral recordings were so gigantic I could feel the expanding kettledrum waves tickling the walls of concert halls.

Bright emitting tubes

I've had the Falcon Acoustics LS3/5a's for several months and have powered them with every amp in the house. They played enjoyably well with all—with one exception. Class-D made these hyper-responsive, 15-ohm speakers sound dry, slightly hard, and more generalized than I like. Class-D amps awoke that napping bass bump and turned the slightly rising treble into a distraction. The LS3/5a has always been an exceptionally amp-friendly speaker, not because it makes mediocre amps sound good, but for quite the opposite reason: The LS3/5a excels at letting you hear exactly what your amp really sounds like.

Like all previous LS3/5a's, the Falcons sang their best with lower-powered class-A or class-AB amps. A supersweet, unusually liquid-sounding, class-AB MOSFET amp—such as the 25Wpc Vinnie Rossi LIO integrated—could bring this antique design into the 21st century. The Falcon-Rossi combo delivered lively, grainless magic, and showed me just how neutral and "invisible" these minimonitors could be. *But . . .*

Like dogs begging for treats, what the 15-ohm Falcons *really* wanted was a tube amp with a 16-ohm tap.

My 22Wpc Line Magnetic LM518 IA amp, with its 845 tubes, responded perfectly to that desire. The minute I hooked it up, the Falcon's tone colors doubled in saturation. Steve Davis of Big Ear Consulting, Falcon Acoustics' US importer, says he uses a PrimaLuna DiaLogue Premium EL34 power amp, which—unlike PrimaLuna's DiaLogue Premium HP integrated, reviewed by Robert Deutsch in *Stereophile* in December 2014[6]—has 16-ohm taps. I've used my 30-year-old Rogers LS3/5a's (serial nos. 23035A/B) with single-ended 300B and push-pull 2A3 amps and have never felt a need for more juice. I didn't have one to try for this review, but every push-pull, 6BQ5/EL84 amplifier I used sounded LSD-spiderweb spectacular! Push-pull 6L6/5881 tubes + LS3/5a is a classic combo I can almost guarantee you'll enjoy. Meanwhile, my Line Magnetic LM518 IA tubed amp made such rich, strong, fantastically detailed, super-lively sound that I used it for all of the listening described below.

The scene was rockin'

Remember 7" 45s? Remember Bobby "Boris" Pickett's "Monster Mash" (Garpax 45-44167), originally released in October 1962? As I hunkered down in my candlelit Bed-Stuy bunker, the surreal vision of the Line Magnetics' thoriated-tungsten–bright emitters and the vivid sounds of Boris and his Crypt-Kickers took mesmerizing hold of me. This is a weird recording. The drum kit is strangely small and distant, but the boiling, bubbling beaker hangs directly in front of my face. Pickett's voice was more richly toned and tangible than I ever dreamed possible. Even the little drum kit sounded quite real.

Countless times I have played a mono recording of Vladimir Horowitz attacking Beethoven's best-known pi-

6 See www.stereophile.com/content/primaluna-dialogue-premium-hp-integrated-amplifier.

ano sonata, "Moonlight," Op.27 No.2 in c#, with full-tilt romantic vigor (LP, RCA LM-2009). Each time, I hear something new. With the Falcons and Ortofon's CG 25 DI II cartridge, I discovered a meteor shower of startling dynamic contrasts. A couple of times I felt as if flashbulbs were going off. The Falcon LS3/5a is less than a foot tall, but the pair of them gave Horowitz's piano a vivid, large-scale presence. Microcontrasts and microdynamics were as good as I could imagine. When I played this recording through the KEF LS50s—designed in homage to the LS3/5a—they couldn't match the Falcons' light-speed–free expression, transparency, or tonal purity.

Not long ago, a friend played me *McLemore Avenue*, Booker T. & the M.G.'s mostly instrumental riff on the Beatles' *Abbey Road* (LP, Stax STS-2027). It sounded so smooth, liquid, and Hammond B3 colorful, I felt I was sliding along a greasy Memphis sidewalk in 1970. My friend's hi-fi is beyond eccentric. It includes an old SoundCraftsman equalizer and some PP-6L6–powered Ampex "suitcase" speakers, and it made *McLemore* sound like a reference recording to die for. Once I got my head outa the back cover—it shows a drunken black man ogling a white chick's legs—I realized that every rhythm change, every snare pop, every Donald "Duck" Dunn bass riff was dripping in irony and sarcasm. By the time I made it through the three Beatles medleys on side 1, I was convinced that I had to go home and buy this LP on eBay—*that night*.

When my "Near Mint" Stax beauty arrived, I immediately played it. It sounded like crap. The tone was sour. The rhythms were *not* ironically funky. I was already writing for *Stereophile*, so occasionally, after installing a new amp or speakers, I would pull out *McLemore Avenue* to hear if it sounded better. It never did.

Until right now. Listening to it and looking at the cover, I feel as if I'm seeing the whole of 1960s white America through the eyes and heart of a black man. In reverie, I'm standing on the corner of East McLemore and College Avenues. I can see Stax's "SOULSVILLE USA" sign, and I finally understand what I was once too young to grasp. Why is my mind suddenly opening up? Because the Falcon LS3/5as are doing their righteous thing.

Today, *McLemore Avenue* sounds way better—and much less distorted—than it did at my friend's house. Steve Cropper's guitar is alive, talking beautifully and tangibly present. Booker T. is holding a B3 chord until I completely grasp its meaning. The Human Timekeeper (Al Jackson Jr.) is pounding it down for human rights. And the Falcons are demonstrating that Memphis soul always sounds best, and box speakers always sound their least peculiar, when the tonal balance and boogie factor are sly, sultry, and right on!

Conclusions

I felt a little naïve for even attempting to tell this story. At this point, there's precious little to debate or describe about the merits of the BBC LS3/5a minimonitor design. And surely, the world doesn't need yet another long review of yet another licensed incarnation of it. The only relevant question is whether or not Falcon Acoustics' LS3/5a is better than earlier LS3/5a's in some *unmeasurable* but listener-tangible way. *Could* this 21st-century incarnation, made by a couple of old farts, possibly play music more accurately or more enjoyably than my 30-year-old Rogers LS3/5a's, and all the Harbeth, Spendor, Chartwell, etc. iterations that came before it?

I doubt I'm qualified to fully answer that question—I haven't heard them all. But I do know that the Falcons make my old Rogerses sound a tad drowsy and fuzzy, like a cartridge with too many miles on it. (Perhaps I'm responding to a fresh tweeter with a slightly stronger response.) The Falcon is livelier and sings more clearly than any other LS3/5a I've heard. To my ears, this new, hypercrafted edition seems more "invisible," better toned, less "miserably" distorted or "peculiar" sounding, than any other moderately priced loudspeaker I've used in my home—ever.

The Falcon LS3/5a has returned me to my roots, and served as a powerful reminder of the joys and beauties that a simple, accurate, easy-to-drive loudspeaker coupled to a charming low-powered amplifier can provide.

I never experienced the original red-tape BBC prototypes. I can only imagine what they may have sounded like. But I've used and enjoyed many different variations of the LS3/5a, and can say, with relative Herbcertainty, that the Falcon Acoustics *might just be* the best production LS3/5a ever made. Only time and the legions of LS3/5a faithful can say for sure. ■

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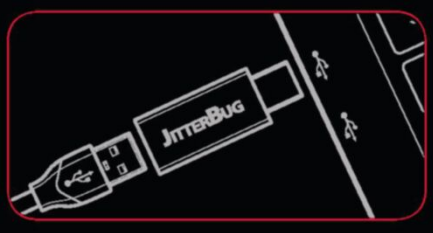
A single JitterBug is used in between devices (i.e., in series) as shown below. For an **additional "wow" experience,** try a second JitterBug into another USB port on the same device (such as a computer). Whether the second port is vacant, or is feeding a printer or charging a phone, JitterBug's noise-reduction ability is likely to surprise you. No, the printer won't be affected—only the audio!

While a JitterBug helps MP3s sound a lot more like music, high-sample-rate files have the most noise vulnerability. Try a JitterBug or two on all your equipment, but never more than two per USB bus. There is such a thing as too much of a good thing.



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JON IVERSON

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D/A PROCESSOR

I've spent the last month recording songs for a pal's upcoming album. His act consists of powerful female and male singers, acoustic and electric bass, and acoustic guitars and mandolin. Jay-Z is funding the project, which is destined to transform the entire hip-hop/rap beat-driven pop landscape into an acoustic-music wonderland.

Okay, I jest about that last part.

Anyway, a couple weeks before recording started, Rega Research's new DAC-*R* ($1195) arrived for review, presenting me with a chance to compare what I was hearing live in the studio with our recorded results played back in the listening room. And because the group was recording a

SPECIFICATIONS

Description Solid-sate D/A processor. Digital inputs: USB: 24-bit 4.1/48/88.2/ 96/ 176.4/192kHz. Optical/ TosLink 1: 24-bit 32/44.1/48/ 88.2/96/176.4/192kHz. Optical/TosLink 2: 24-bit 32/44.1/48/88.2/96/176.4 / 192kHz. Coaxial 1: 24-bit 32/ 44.1/48/88.2/96/ 176.4/192kHz. Coaxial 2: 24-bit 32/44.1/48/88.2/96/ 176.4/192kHz. Bit resolution (all inputs): 16 to 24-bit. Supported data rates: 32, 44.1, 48, 88.2, 96, 176.4, 192kHz. Frequency response (100k ohms load:) Filter 1 selected. Low data rate, 10Hz–20.02kHz, –0.05dB (44.1kHz), 10Hz–21.7kHz –0.03dB (48kHz). Medium data rate: 10Hz–28.7kHz, –0.05dB (88.2kHz), 10Hz–31.2kHz, –3dB (96kHz). High data rate: 10Hz–44.1kHz, –0.05dB (176.4kHz) 10Hz–47.7kHz, –3dB (192kHz).Maximum output level: 2.175V into 100k ohms load. Total harmonic distortion, all inputs (24/96): 0.006% at 1kHz. Signal/noise: –105dB, relative to maximum output level with a 100Hz–22kHz bandwidth.
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Serial number of unit reviewed 11181.
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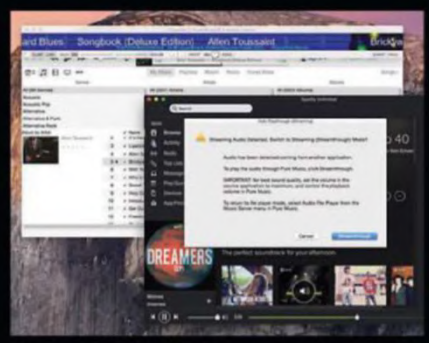

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second set of songs at Painted Sky, another studio nearer the coast, in Harmony, California,[1] it was also an opportunity to hear how the same people sounded when recorded in two different places by two different sets of ears at about the same time. Every few days, I received a CD with the latest mixes from Painted Sky, which I could compare with what we were getting here at Dog Bark. I thought, *What could be better than using live music as a reality check for a DAC?*

Well, it got complicated. Although I and the other engineer were both trying to capture the "reality" of the same musicians and instruments in a live space, it quickly became apparent that there's more than one artistically valid way to do this.

The same is true, in a more subtle way, of designing a DAC. Given that the final recording document the listener buys is the final "reality," DAC designers still have some room in which to make choices and home in on the sound they seek. And as in the studio, where choosing the right microphone for a voice or guitar is an art, the designer must decide between various chipsets, filters, power-supply designs, clocking technologies, and so on, to fine-tune the sound of his or her DAC.

In our sessions, the choices of mikes and mixes made in the studio forever changed the reality recorded, but having Christine singing *right there*, 6' away, did help me hear just how well a given DAC was reproducing her voice. More about this later.

The DAC-R actually has six filters, optimized by sampling rate.

The DAC-*R*

Outwardly, the DAC-*R* looks very similar to Rega's previous DAC, called simply the DAC and reviewed by Sam Tellig in the May 2011 issue.[2] However, changes have been made: The case is bit longer, which permits a better layout for the power supply, and Rega tells me they've made minor changes in the power connector and improvements in the firmware and hardware operation at 176.4kHz, as well as to the power-up process. The price has risen by $200, and you can now control the input and filter selections via remote control.

The most significant change for computer-audio users is that the DAC-*R* has an XMOS-based, 24/192 USB asynchronous input. In his review four years ago, Sam quoted Terry Bateman, Rega's electronics design engineer, as saying that Rega didn't see USB "as a *high-tier* audio interface." Things change—the USB input stage now feeds the optical and coaxial input stages via an isolating transformer, totally

1 Yes, this is actually the name of the town, in which one finds little more than the well-equipped Painted Sky Recording Studio and a pottery shop. Population: 18. Perfect for music, yes?

2 See www.stereophile.com/content/rega-dac-da-processor.

MEASUREMENTS

Superficially, the DAC-*R* looks identical to Rega's original DAC, which Sam Tellig reviewed in the May 2011 issue. However, the DAC-*R* replaces the DAC's Burr-Brown PCM2707 USB receiver chip with a higher-performing XMOS chip. I measured the DAC-*R* with my Audio Precision SYS2722 system (see www.ap.com and the January 2008 "As We See It," http://tinyurl.com/4ffpve4). Sources were S/PDIF on TosLink and coaxial from the SYS2722, and USB from my 2012 MacBook Pro running on battery power. Macintosh's USB Prober utility reported the Rega's product string as "XMOS USB Audio 2.0," and confirmed that the USB port operated in the optimal isochronous asynchronous mode. Though specified as being 192kHz capable, the TosLink input locked to datastreams with sample rates only up to 96kHz. However, Rega does warn, in the DAC-*R*'s manual, that TosLink connection above 96kHz will depend on the link used, and I was using a cheap plastic TosLink cable. The coaxial S/PDIF and USB inputs operated correctly up to 192kHz.

The maximum output level at 1kHz was very similar to that of the original Rega DAC,[1] at 2.176V. The output preserved absolute polarity and was sourced from a fairly low impedance: 595 ohms at high and middle frequencies, rising inconsequentially to 663 ohms in the low bass. The impulse response with Filter 1 (not shown) is a conventional time-symmetrical, linear-phase, half-band type; with Filters 2 and 3, the impulse response is a minimum-phase type, with all ringing following the impulse (fig.1).

With 44.1kHz-sampled white noise at –4dBFS, Filter 1 gave a rapid rolloff above the audioband, reaching the stopband noise floor at 24kHz (fig.2, red and magenta traces), and sup-

1 Compare these measurements with those of the original Rega DAC at www.stereophile.com/content/rega-dac-da-processor-measurements.

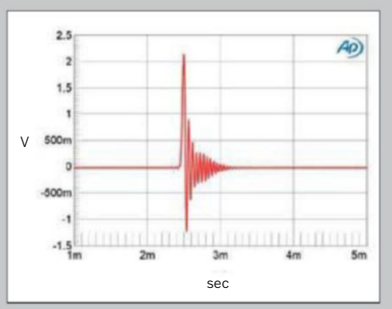

Fig.1 Rega DAC-*R*, Filter 2, impulse response at 44.1kHz (4ms time window).

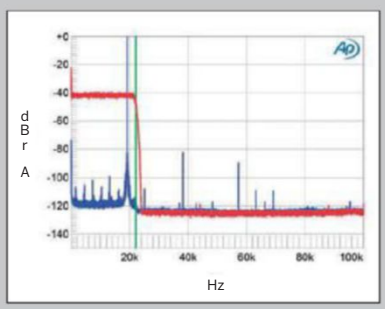

Fig.2 Rega DAC-*R*, Filter 1, wideband spectrum of white noise at –4dBFS (left channel red, right magenta) and 19.1kHz tone at 0dBFS (left blue, right cyan), with data sampled at 44.1kHz (20dB/vertical div.).

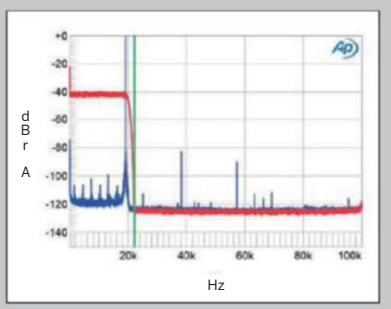

Fig.3 Rega DAC-*R*, Filter 3, wideband spectrum of white noise at –4dBFS (left channel red, right magenta) and 19.1kHz tone at 0dBFS (left blue, right cyan), with data sampled at 44.1kHz (20dB/vertical div.).

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isolating the DAC from the host computer.

Inside are twin "Buffer-Stage-Driven" Wolfson WM8742 DAC chips, but no upsampling. Bateman explained to me that "The plan was to keep the signal path as straightforward as possible and not run the DAC ICs faster than the incoming sample rate by means of a rate converter, thus complicating things." He said that the same mo' simple, mo' betta approach goes for the clean analog signal path: "I used the same discrete output amplifier I used in the Saturn and Apollo [DACs], giving a drop of old-school discrete transistor mojo." Bateman also said, "I have used good-quality electrolytic and film capacitors in the analog signal path. I paid attention to the power supplies for all stages, along with the integrity of the data and clock signals running throughout the unit." In fact, there is a power supply for the control microcontroller, separate from the digital and analog audio stages.

Outwardly, the DAC-*R* looks very similar to Rega's previous DAC.

Physical Details

Rega's DAC-*R* measures 8.4" wide by 3.1" high by 12.5" deep and weighs 8.8 lbs, and feels as dense as a block of stone. When tapped, its case does not ring anywhere. A slight depression runs down the center of the top plate from front to back, as if someone had pressed down a rolling pin lengthwise and gently rocked it back and forth. So although the DAC-*R* is essentially a rectangular box, it has pleasantly sculpted feel.

Four large rubber feet on the bottom plate raise the DAC-*R* about half an inch above whatever surface it sits on. It ran warm but never hot in my cabinet, where its case of aluminum, steel, and glass projected an aura of no-nonsense refinement. On the DAC-*R*'s faceplate of highly reflective glass are three silver buttons in a row, an IR sensor, and three sets of small red LEDs. The power button, on the left, has a solid mechanical feel when engaged; the other two buttons require only a slight, brief tap. The center button selects among three filters (see below). To the right of it is a column of four LEDs indicating the sample rate the DAC-*R* is locked to: 44.1–48, 88.2–96, 176.4, or 192kHz. To the right of those is the Input button, surrounded by an arc of six LEDs indicating which input has been selected (USB, 1–4), and Input Locked.

measurements, continued

pressing the ultrasonic image at 25kHz of a full-scale tone at 19.1kHz by almost 110dB (fig.2, blue, cyan).[2] Filter 2 behaved virtually identically on this test, though with 10dB greater suppression of the 25kHz image (not shown). Filter 3 is specified as being an apodizing type, and its output spectrum with these signals (fig.3) confirmed that spec, the ultrasonic rolloff reaching the stopband noise floor at precisely half the sample rate (fig.3, vertical green line). A more conventional plot of the DAC-*R*'s frequency response with data sampled at 44.1, 96, and 192kHz (fig.4) suggested that the ultrasonic bandwidth was more restricted than usual at the higher sample rates. With 96kHz data, for example, the response is down by 6dB at 31kHz, which is very similar to how the Rega DAC behaved.

Channel separation at 1kHz was superb, at 105dB R–L and 115dB L–R, these respectively decreasing to 79 and 88dB at 20kHz due to the inevitable capacitive coupling between channels. The audioband noise floor was clean, other than some very low-level spuriae (around –123dB) at the power-supply frequency of 60Hz and its odd-order harmonics, these most likely due to magnetic interference from the transformer.

These spuriae can be seen in fig.5,

2 This test was suggested to me by Jürgen Reis, chief engineer of MBL.

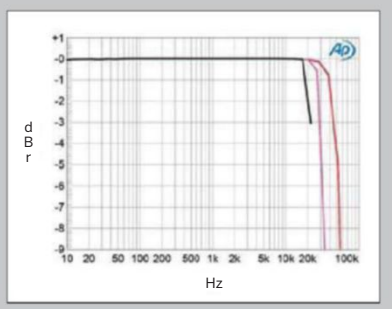

Fig.4 Rega DAC-*R*, Filter 1, frequency response at –12dBFS into 100k ohms with data sampled at: 44.1kHz (left channel blue, right red), 96kHz (left green, right gray), 192kHz (left cyan, right magenta) (1dB/vertical div.).

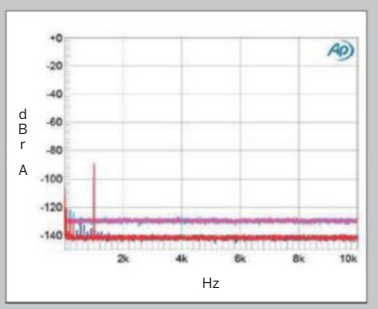

Fig.5 Rega DAC-*R*, spectrum with noise and spuriae of dithered 1kHz tone at –90dBFS with: 16-bit data (left channel cyan, right magenta), 24-bit data (left blue, right red) (20dB/vertical div.).

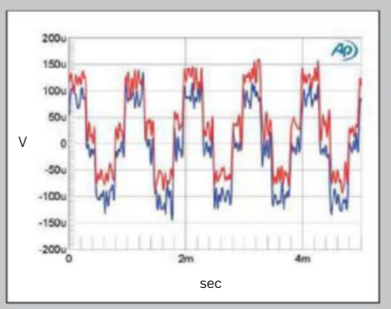

Fig.6 Rega DAC-*R*, Filter 1, waveform of undithered 1kHz sinewave at –90.31dBFS, 16-bit data (left channel blue, right red).

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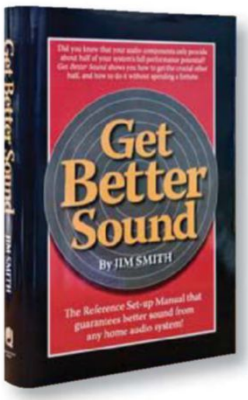

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On the rear panel, from left, are: the 24-bit/192kHz USB input, two 24/192 optical inputs, two 24/192 S/PDIF coaxial inputs, an optical digital output, an S/PDIF coaxial output, and left/right analog RCA jacks. On the right are the fuse bay and the IEC C13 power receptacle. This is a no-frills DAC with *no* balanced connections, AES/EBU input, DSD processing, or headphone jack.

Also included is a remote control that, though festooned with buttons, is of little use. Only one of its 18 buttons, the input selector, controls anything on the DAC-*R*. Rega's optional Solaris system remote ($125) includes a button for switching among filters, along with a ton more buttons that also have nothing to do with the DAC-*R*. I suppose this encourages "system" purchases, but it makes no sense for the user whose only Rega component is a DAC-*R*. A dedicated remote with controls for only the DAC-*R*'s most important functions, Input and Filter selection, would be much better, and probably cheaper to make.

Filter Details

I love seeing a DAC with a reconstruction filter selector—it lets the listener fine-tune the trade-offs of each slightly compromised approach. The Rega DAC-*R* has three choices of Filter setting, but each of these changes depending on sampling rate. For sampling rates of 48kHz and under, they are: Filter 1) Linear phase half-band, 2) Minimum phase half-band, and 3) Minimum phase apodizing. For medium and higher sampling rates (88.2–192kHz), the filters are: 1) Linear phase soft-knee, 2) Minimum phase brickwall, and 3) Linear phase apodizing.

This means that the DAC-*R* actually has six filters, optimized by sampling rate. I didn't realize this at first, and was a bit puzzled when I preferred Filter 1 with 44.1k material, though not by much, but ended up definitely preferring Filter 3 with high-resolution recordings. In the end, this resulted in my leaving the setting on Filter 3, the apodizing setting, most of the time.

If you prefer your digital music with a slight bit of warmth, but without losing any of a recording's details, the Rega DAC-*R* is a DAC for your short list.

I later learned that Bateman refers to the DAC-*R*'s three Filter responses as "standard," "extended," and "gradual." He wrote to me: "The extended filter extends to the maximum response allowed by the sample rate. The gradual filter rolls off sooner than the standard filter." So it turns out my preference was for a slightly rolled-off filter! We'll see what John Atkinson's measurements reveal, but I stand by my choice, made before Bateman sent his e-mail.

Setup Details

When first plugged into my computer's USB port, the Rega DAC-*R* came up in Audio Preferences as "XMOS USB 2.0 Audio Out." I found that my MacBook Pro recognized the USB connection from the DAC-*R* whether or not the Rega was powered up, and that I was able to select sample rates on the Mac even before powering up the DAC-*R*.

I also found that the Rega was around 1.5dB louder than

measurements, continued

which plots the DAC-*R*'s output spectrum as it reconstructs a dithered 1kHz tone at –90dBFS with first 16-bit data (cyan and magenta traces), then 24-bit data (blue, red). The increase in bit depth drops the noise floor by 12dB or so, suggesting that the DAC-*R*'s resolution is *ca* 18 bits—easily enough for it to correctly reproduce the stair-step shape of an undithered tone at exactly –90.31dBFS (fig.6). With undithered 24-bit data (not shown), the result was a good if slightly noisy sinewave. These last tests were performed with S/PDIF data; repeating them with USB data gave identical results, confirming that the USB input correctly handles 24-bit data.

Like Rega's DAC, the DAC-*R* offered very low levels of harmonic distortion, even into 600 ohms (fig.7). The second and third harmonics are the highest in level, both lying a couple of dB above –90dB (0.003%). Intermodulation distortion was also extremely low (fig.8). This graph was taken with Filter 3, which suppresses the 20kHz tone by 4dB. This will not audible, however.

Tested for its rejection of word-clock jitter with 16-bit/44.1kHz J-Test data, the DAC-*R* produced a spectrum very similar to the Rega DAC's (fig.9). While the odd-order harmonics of the LSB-

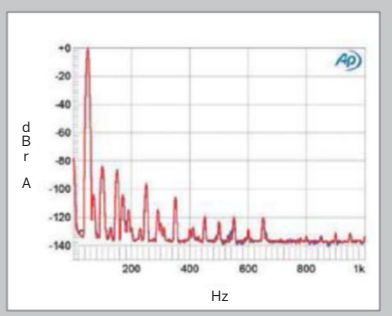

Fig.7 Rega DAC-*R*, spectrum of 50Hz sinewave, DC–1kHz, at 0dBFS into 600 ohms (left channel blue, right red; linear frequency scale).

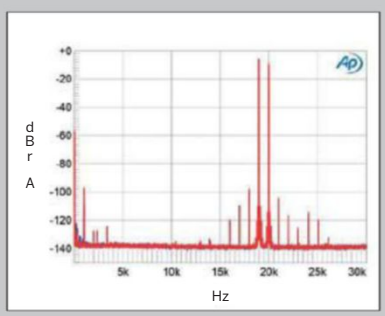

Fig.8 Rega DAC-*R*, Filter 3, HF intermodulation spectrum, DC–30kHz, 19+20kHz at 0dBFS into 100k ohms, 44.1kHz data (left channel blue, right red; linear frequency scale).

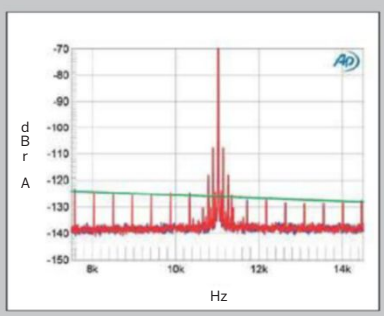

Fig.9 Rega DAC-*R*, high-resolution jitter spectrum of analog output signal, 11.025kHz at –6dBFS, sampled at 44.1kHz with LSB toggled at 229Hz: 16-bit data via S/PDIF (left channel blue, right red). Center frequency of trace, 11.025kHz; frequency range, ±3.5kHz.

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the other DACs on hand. So when I compared the DAC-*R* with Benchmark's DAC2 HGC, for example, I calibrated the adjustments to ensure comparable listening levels. Also, since I wanted to listen to the original 24/96 WAV-file recordings we were making for my friend's album directly from the computer, I needed to connect my mix computer and recording interface to the Rega via S/PDIF.

I called Stephen Mejias at AudioQuest headquarters (actually, I think he may have been home on the East Coast when he answered the phone, wearing one of his ironic T-shirt-and-hipster-jeans ensembles), and one credit-card debit later, AQ's best S/PDIF bulk cable and connectors were on their way, to link my main listening room to my studio, 30' away. Everything worked perfectly.

Music Details

When working with a new singer, one of the first things on the agenda is to test different vocal mikes. We'll record multiple passes with each mike and then, over the next few days, do some listening. When I did this with the Rega DAC-*R*, it was easy to hear each mike's character, for better or worse.

Which brings me to the complicated part of this review. Microphones color the sound, and engineers, artists, and producers generally pick the colors they like for any situation. But in making these decisions, how do you know you're not hearing colorations produced by the *rest* of your recording and/or monitoring system, added to or subtracted from the mike's colorations? Stories are legion of albums

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Digital Sources Apple MacBook Pro computer (2.66GHz Intel Core 2 Duo, 8GB RAM, 512GB SSD) running OS 10.10.3, Audirvana Plus, iTunes 11.1.5, Sonic Studios Amarra 2.5, Songbird 1.9.3, XLD; Western Digital 2TB NAS device; Oppo BDP-103 universal BD player; Meridian Digital Media System (Control 15, QNAP TS-669 Pro NAS); Apple iPad Air, iPod Touch 1G, iPhone 6.
Digital Processors Benchmark DAC1 USB & DAC2 HGC, AudioQuest DragonFly USB DAC, Cambridge Audio Dac-Magic XS.
Preamplifier Marantz AV7005 in Pure Direct Mode.
Power Amplifier Classé CAM 350 monoblocks (2).
Loudspeakers Main system: MartinLogan Prodigy & BalancedForce 212 subwoofers (2). Desktop & recording monitoring system: Emotiva 5, Velodyne Servo-F Series subwoofer.
Cables: AudioQuest Victoria (DragonFly). Line: various Kimber Kable, XLO HT Pro. USB: AudioQuest Diamond, Cardas Clear. S/PDIF: AudioQuest HD6 Carbon (studio to main listening room), Cardas Neutral Reference, XLO. Speaker: Kimber Kable BiFocal XL. AC: manufacturers' own.
Accessories Dedicated 40A line (amplifiers), dedicated 15A lines (digital & analog components).—**Jon Iverson**

measurements, continued

level, low-frequency squarewave are all close to their correct levels (indicated with the green line), there are sidebands at ±120 and ±240Hz.

In our review of the Rega DAC in May 2011, I had ascribed these sidebands to jitter, but I was incorrect. The level of jitter-related sidebands decreases as the frequency of the signal described by the digital data also decreases. But as you can see in fig.10, which compares the spectrum of the DAC-*R*'s output while it decodes data representing a full-scale tone at 10kHz (blue and red traces) with that of a full-scale 6kHz tone (green, gray), the sidebands remain at the same level with the low-frequency tone. This suggests that these sidebands are not jitter related, but are more likely due to there being some 120Hz leakage from the power supply on the DAC chip's voltage reference input. The level of the sidebands dropped by 10dB for each 10dB reduction in signal level, as can be seen in fig.11, which plots the output spectra when the level of the 6 and 10kHz tones is reduced to –20dBFS. With tones at –40dBFS, there are no sidebands at all (fig.12). I conjecture that the DAC-*R*'s power supply has too high an impedance to fully isolate the DAC's voltage reference input when the DAC is reconstructing high-level analog signals. How serious a problem is this? Probably not very, though I did wonder, with the earlier Rega DAC, if this behavior correlated with both Sam Tellig and Jon Iverson finding the DAC to sound warm, even a touch heavy.

Other than that minor issue, the Rega DAC-*R* offered measured performance that was beyond reproach.

—**John Atkinson**

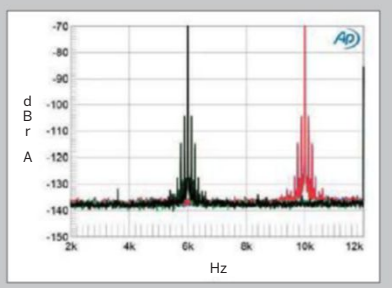

Fig.10 Rega DAC-*R*, high-resolution spectrum, 2–12kHz, of analog output signal, 10kHz at 0dBFS (left channel blue, right red), and of 6kHz tone at 0dBFS (left green, right gray); sampled at 44.1kHz, 24-bit data via S/PDIF (linear frequency scale).

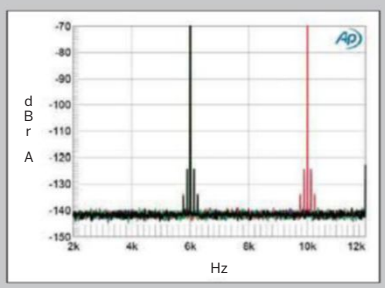

Fig.11 Rega DAC-*R*, high-resolution spectrum, 2–12kHz, of analog output signal, 10kHz at –20dBFS (left channel blue, right red), and of 6kHz tone at –20dBFS (left green, right gray); sampled at 44.1kHz, 24-bit data via S/PDIF (linear frequency scale).

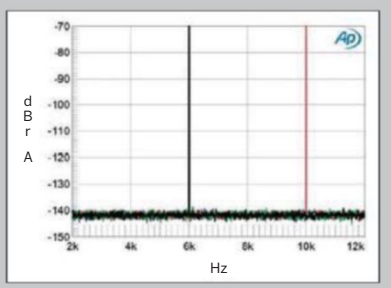

Fig.12 Rega DAC-*R*, high-resolution spectrum, 2–12kHz, of analog output signal, 10kHz at –40dBFS (left channel blue, right red), and of 6kHz tone at –40dBFS (left green, right gray); sampled at 44.1kHz, 24-bit data via S/PDIF (linear frequency scale).

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mixed on boomy monitors that end up with weak bass and a bright top end. Unless you've gained perspective by working with a lot of different systems, and unless you have listening tools you trust, you don't really know.[3]

One of the tools in my system that I trust is the Benchmark DAC2 HGC, which I use for both music and recording playback. I've found it to be clean as a whistle, which works great for my needs. Others may want a little sugar on top, and here's where the Rega DAC-*R* comes back in. Listening to these vocal tests and subsequent final takes, and going back and forth between the Rega and Benchmark, I detected a slight warmth or sweetening with the Rega that I didn't hear with the Benchmark.

And I liked it. The singer preferred it. You might, too. At the end of the day, I'll pick the Benchmark DAC2 HGC—I default to a more analytical sound—but the Rega DAC-*R* produced a wonderful soundstage, floating aural images in space where they should be, with plenty of detail and depth.

Over the next two weeks, we recorded mandolin, five-string fretless electric bass, and double bass (another mike shoot-out: a small capsule condenser surprised us all). In each case I used the Rega to choose which mike and mike placement we'd use, and to guide us to a final mix. But for that mix I ended up preferring the Benchmark, which sterilized the sound just enough to make me think I was hearing more accurately what was on the hard drive. A very subtle thing, but there it is.

However, it could be that my preference for the DAC-*R*'s Filter 3 for enjoying music may have had something to do with my preference for the Benchmark for mixing. For sitting back and listening to music, especially hi-rez files, I preferred Filter 3—although, as Rega's Terry Bateman noted, it gradually rolls off at the very top. I chose Filter 3 before the recording sessions began, while going through my library of go-to test tracks stored on the Meridian Digital Media System server. But the cool thing is, I can change that flavor of the Rega's presention a bit by using a different filter.

Final Detail

At $1195, the Rega Research DAC-*R* sits at the center of what I consider the sweet spot of price: $1000, plus or minus a few C-notes. Rega has spent enough in R&D to get the most cost-effective use of solid engineering, careful design, and parts choice, without passing the point of diminishing returns. The things it doesn't do include headphone listening, DSD, and volume control, yet the DAC-*R* is clearly well built, with money spent in all the right places to fulfill its single purpose: to convert a PCM datastream into an analog stream.

A couple years ago, when I first auditioned the Rega DAC, I noted its heavier bottom end and thicker sound compared to everything else I then had on hand. I feel that the new DAC-*R* is similarly voiced, but has moved in the right direction, especially when used via USB—which makes it a very pleasing choice for listening to music.

If you have $1195 to spend and prefer your digital music with a slight bit of warmth, but without losing any of a recording's details, the Rega DAC-*R* is a DAC for your short list—especially since you can tune those filters. ■

3 A timeless "As We See It" by J. Gordon Holt from almost 40 years ago hits this right on the head: www.stereophile.com/content/whos-right-acccuracy-or-musicality.

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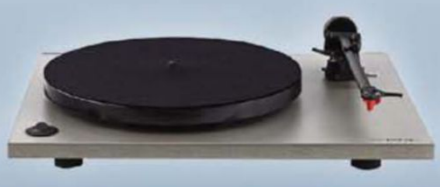

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FOLLOW-UP

BY ART DUDLEY & JOHN ATKINSON

THIS ISSUE: Ayre's AX-5 integrated amplifier and Bricasti's M28 monoblock amplifier get second listens.

AYRE ACOUSTICS AX-5 TWENTY INTEGRATED AMPLIFIER

Above: The Ayre AX-5 Twenty. **Right:** A glimpse inside, including the motor-actuated VGT system at the chassis rear.

"You are going to freak out."

In February, that prediction was offered to me by Alex Brinkman, the usually understated sales manager for Ayre Acoustics. The suggested catalyst for my otherwise unforeseen psychotic episode: A new edition of Ayre's AX-5 integrated amplifier, the original version of which I reviewed for *Stereophile*'s September 2013 issue.[1] I was impressed with the first edition—a zero-feedback, solid-state design that I described as being no less than "one of the three best, most musical, and most human-sounding solid-state amps I've ever heard"—but, as far as I can recall, it utterly failed to compel me to run naked through the streets of my village.

The original Ayre AX-5 sold for $9950 and produced 125Wpc, and in it chief engineer Charlie Hansen debuted a modern implementation of a heretofore obscure 1960s output architecture: the *diamond circuit*, an arrangement of four bipolar transistors that's well suited for operating above electrical ground. (To a designer who favors balanced audio electronics—a category that includes the AX-5—the appeal of such an approach is obvious.) Ayre also claimed for the diamond circuit such strengths as high speed, high power gain, high reliability, and, best of all, good sound.

Another gem in the AX-5's tiara was Ayre's own variable-gain transconductance (VGT) circuitry: a means of controlling loudness not by attenuating maximal gain—which willfully hobbles the only operating condition under which an amp can perform at its best—but by creating, for each of its 46 volume-control settings, a distinct amount of input-section gain. Each turn of the AX-5's volume knob enacted a parts substitution that created a distinctive circuit: a control system that required of its designers a great deal of electrical and mechanical ingenuity.

All of the above was built into a foursquare aluminum-alloy case whose rear panel offered one stereo pair of loudspeaker connectors and six pairs of line-level inputs—four balanced (XLR), two single-ended (RCA)—and on whose front panel were two large knobs, for source selection and volume, and two soft-touch buttons that performed a variety of jobs.

The AX-5 Twenty ($12,950), named in honor of Ayre's 20th anniversary, looks identical to its predecessor. But my review sample sounded a bit different from the AX-5—a point to which I'll return—and even *felt* noticeably different. The AX-5 ran quite hot, but the Twenty has an output-stage revision—called the double diamond circuit—for which a 35% reduction in heat is claimed. I didn't bother taking the Twenty's temperature: Although unabashedly warm, the top of the Twenty's case was definitely cooler during operation than the AX-5's had been. Ayre also claims that the double-diamond version is "slightly more powerful" than the previous version, although the published output spec, on both their website and in the Twenty's owner's manual, holds steady at 125Wpc.

According to Ayre, the AX-5 Twenty's all-analog, zero-feedback power supply has also been refined, and now benefits from the company's AyreLock technology, which adds extra discrete components to the regulation circuitry in an effort to "lock" the output voltage under all performance conditions. Additionally, trim pots in the AX-5's input section have been replaced in the Twenty with a servo unit that Ayre describes as "much better sounding." Just as important, this servo is claimed to keep DC offset to less than 15mV, and even to compensate for DC that may be present in the outputs of some source components, making accidental

1 See www.stereophile.com/content/ayre-acoustics-ax-5-integrated-amplifier. Ayre Acoustics, Inc., 2300-B Central Avenue, Boulder, CO 80301. Tel: (303) 442-7300. Web: www.ayre.com.

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The day I removed the Signature SE from my system, to send it on to John Atkinson to be measured, my wife came home from work, looked at the rearranged components on my rack, and said, "What? The preamp's gone?"

Robert J. Reina, Stereophile June 2015

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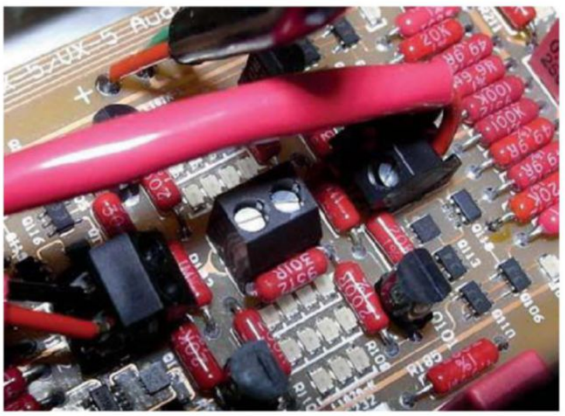
INSTALLATION AND SETUP: Perhaps it's only because I'm two years older than the last time I had an Ayre product in for review, but this time around I really chafed at the AX-5's setup procedure, which I've come to regard as pointlessly complex. Out of the box, the AX-5 Twenty is unusable: Before listening to music, the user must configure at least one of the amp's six inputs. In and of itself, that's not a huge deal; the problem lies in the 40-page instruction manual's presumption of the reader's very high level of interest in reading about Ayre's way of doing things—high enough not to blink when told, without apparent irony, that the information required to get a "quick start" on using the AX-5 "is contained in the [first] three chapters." And I was frustrated that, in the chapter on input configuration, the user is instructed to assign to each input a unique name, lest said input remain nonfunctional—yet no indication is given as to which of the AX-5's front-panel controls performs the select function. Granted, with only two knobs and two buttons on its front panel, the AX-5 Twenty is hardly a Klingon Bird of Prey, and I stumbled upon the correct procedure within a minute. Still, why should the buyer of a $13,000 amplifier have to proceed by trial and error?

Once I had the AX-5 Twenty up and running, all was well. With no balanced components on hand, I limited myself to two single-ended sources: my Sony SCD-777ES SACD/CD player, and the line-level outputs of a Leema Acoustics Essentials phono preamplifier. I labeled their respective inputs CD and PH, then proceeded to enjoy the more pleasant aspects of the AX-5 Twenty's user interface: control buttons on the large, sturdy remote handset are clear and well organized; when switching between sources, the AX-5 Twenty did not force me to toggle through unused inputs; the amp's Cardas speaker connectors accommodated well the Z-plug–style bananas on my Auditorium 23 speaker cables; and the 48-lb AX-5 Twenty—which is 17.25" wide by 4.875" high by 18.75" deep—fit nicely atop my Box Furniture D3S rack.

As with the original AX-5, the build quality of the AX-5 Twenty is mostly superb, my only quibble being the slightly rough manner in which metal screening is affixed to the underside of the top panel. Otherwise, everything was first-class: Ayre bows to no one in the neatness of their circuit boards, and the AX-5 Twenty's motorized, belt-driven, resistor-array volume control is indeed a small masterpiece of engineering.



The resistor connected to this terminal panel plays a small role in determining the AX-5's gain. Very small.

A final setup note: For this review, I followed through on a suggestion I'd seen in the original AX-5's instruction manual, on how to customize the amp's overall gain by changing a single resistor per channel. Since both of the speaker models I used are considerably more efficient than average, I decided to try lowering the amp's gain, and requested the appropriate new resistors and instructions for their installation, which were duly supplied. Apart from the Allen wrench used to remove the AX-5 Twenty's top panel, the only tool required for the changeover was a very small, flat-blade screwdriver: The resistors in question are not soldered in place, but secured with miniature terminal blocks that were reasonably easy to access. That said, after replacing the original resistors (301 ohm) with the new ones (619k ohms), the change in gain range was extremely modest. That experience, especially when considered alongside the advantages of Ayre's VGT technology, leads me to advise prospective owners against bothering with this mod.

LISTENING: Right out of the box, the AX-5 Twenty hinted at greatness, with textures wildly good for solid state and a thoroughly convincing way with musical momentum and flow. But it also sounded somewhat compressed, somewhat lacking in the ability to break out of its cage—whether driving my DeVore Fidelity Orangutan O/96 or vintage Altec Valencia speakers. In the days that followed, the Altecs, with their higher efficiency and sometimes peaky low-treble range, proved the poorer match, so I stayed with the DeVores for the duration: a really excellent choice. After a little over a week of around-the-clock running-in, the Ayre opened up and showed what it could *really* do.

In my original review, I wrote that the very faithful AX-5 cut no slack for bright-sounding recordings, a category that includes Peter Rowan's eponymous first solo album (LP, Flying Fish 071). I expected the same this time out—and yet, though the Twenty was itself truthful on the matter of Richard Greene's hotly mixed and hard-sounding fiddle, what I heard this time was truth of a more generous-spirited sort. Selections such as "Midnite Moonlite" remained on the bright side of neutral, but were more tolerable than I remembered from my go-round with the first AX-5. I am very much in favor of tolerable playback.

In that same review I also mentioned how the original AX-5 played André Previn and the London Symphony Orchestra's recording of Tchaikovsky's *Manfred Symphony* (LP, EMI/Alto ASD 3018) with a degree of believable scale and spatial perspective that I described as "tube-caliber." The Twenty performed just as well in those regards, yet sweetened the deal with . . . well, with sweetness: This time, this excellent if occasionally slightly grainy and occasionally too-hot-on-the-crescendi recording had more saturated timbral colors and richer textures than I remembered hearing through the original AX-5. It was, simply and unambiguously, *better*—and I'm also on the record as preferring better, ten times out of ten.

The sounds of antique wind and percussion instruments in Musica Antiqua Vienna's *Le Jardin Musical* (LP, Supraphon 1 11 2126)—which, in that earlier review, I described as being "pleasantly tactile" through the AX-5—were, through the Twenty, joined in that regard by the sounds of the viola, the viola da gamba, and various singing voices, all reproduced with color, body,

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scale, melodic and rhythmic drive, and believable spatial presence. (I almost said "soundstaging," but caught myself at the last second.) With that record, the Twenty delivered the sort of best-of-all-worlds performance—musical rightness *and* sonic realism—that has been known to stir the complacent, if not to compel them to dance naked, checkbooks in hand.

That LP wasn't alone. Through the Ayre, I enjoyed: a recording of American classical music (Barber, Ives, Copland, Cowell, Creston) conducted and played by the very British Neville Marriner and the Academy of St Martin-in-the-Fields (LP, Argo ZRG 845); the Electric Recording Company's new and typically colorful LP reissue of *D'ombre et de lumière*, a recital of mostly Spanish music performed by pianist Magda Tagliaferro (LP, EMI/ERC 350 C 001); David Grier's wonderfully stringy instrumental collection *Evocative* (CD, Dreadnought 0901); and the uneven but ambitious and curiously satisfying *Murder Ballads*, by Nick Cave and the Bad Seeds (CD, Reprise 46195-2). All sounded wonderful, and served only to cement my impression that the AX-5 Twenty is inarguably more realistically colorful, impactful, and compelling than its predecessor.

VALUE: I don't know much about consumer psychology, so I haven't a clue whether the AX-5's crossing of the five-figure Rubicon will be seen as a good or a bad thing in the high-end marketplace. I do know that a 30% increase in price seems stiff for an integrated amplifier—something that most of us are conditioned to regard as an entry-level component. There are available, for $3000 or less, some awfully good one-box amps, though probably none as good as this. That said, it's worth noting that Ayre will upgrade to full Twenty status any older AX-5 for $3000: the same amount as the difference between the model's prices.

Did I freak out? The Ayre Acoustics AX-5 Twenty proved a consistently engaging, reliably musical, downright fun integrated amplifier; it improved on its predecessor in every way except the user interface; and it stands as one of the easiest choices in integrated amps on the market, with a pedigree that suggests superb reliability and freedom from obsolescence. Very strongly recommended, amp and upgrade alike.**—Art Dudley**

BRICASTI DESIGN M28 MONOBLOCK POWER AMPLIFIER

When Michael Fremer reviewed this $30,000/pair power amplifier in the May 2015 issue,[2] he admitted that he had difficulty getting it to sing with his Wilson Alexandria XLF speakers, especially before the review samples had broken in. "Out of the box and dead-of-winter-right-off-the-truck cold (but given a day to reach room temperature)," he wrote, "the M28s sounded more tube-like, more 'soft and loose' than 'fast and tight.' Though it was consistent in these and other regards from top to bottom, the M28s didn't exactly provide the woofer control advertised on Bricasti's website. Bass was soft and rhythmically bland."

After the amplifiers had been continuously running for a week, MF felt the Bricasti M28s' top end fully opened up, their bottom had tightened, and the overall sound was considerably more transparent. However, he still felt the M28's sonic signature was "more smooth and sweet than fast and tight."

In their "Manufacturer's Comment," Brian Zolner and Casey Dowdell of Bricasti Design[3] felt that Michael was yearning after aspects of the sound that, in absolute terms, were unnatural. "When a listener is presented with a sound that contains an order of magnitude less distortion than their reference system," they wrote, "it takes time to hear that as a positive aspect of the sound. Distortion masks the honesty of the recording, but it also adds high-frequency excitement. The additional harmonics add volume, particularly to transient elements and elements that already have a bit of distortion in the recording." In my "Measurements" sidebar to the review, I had noted that the M28s did indeed offer very low distortion. "Even at 40% power into 4 ohms," I wrote, the highest-level distortion harmonic, the third, "lay at –90dB (0.003%)."

The M28 offers both balanced and unbalanced inputs. JA used balanced exclusively.

There was also a possible complication with Michael's reference preamplifier, the darTZeel NHB-18NS, which sounds at its best when used from its single-ended outputs, whereas the M28 prefers to see a fully balanced input signal. Michael did use the darTZeel's transformer-coupled balanced outputs, as well as its single-ended outputs, to drive the Bricastis, but that introduces another variable.

Given all of these matters, Brian Zolner asked me if I would be prepared to write a Follow-Up on the M28, especially as I still had the review sample that I had measured (serial no.1006). I agreed, and the other sample MF had reviewed (no.1007) was shipped to me after being checked out at the factory. (Zolner let me know that no.1007's bias was slightly high, but did not think this would change the measured performance.)

I was also sent an up-to-date sample of the Bricasti M1 D/A processor, which I had reviewed in February

2 See www.stereophile.com/content/bricasti-design-m28-monoblock-power-amplifier.

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2012.[4] However, to avoid changing too many variables at once, I did most of my auditioning of the M28s with two balanced-output DACs with which I was familiar: Ayre Acoustics' QB-9 and PS Audio's PerfectWave DirectStream—the latter running the v.1.2.1 firmware because I was not familiar with the more recent Pikes Peak upgrade—both connected via AudioQuest's JitterBug USB cleaner. The source was a Mac mini running Pure Music 2.0 and Audirvana Plus v.1.5.12, and the speakers were first the KEF Blade Twos (I reviewed these in June), then GamuT RS7s (review underway). At first, I used the DACs to drive the fully balanced Ayre KX-R Twenty preamplifier.

Mostly, I think, Michael called it correctly. Once broken in—which did indeed take a few days from completely cold—the M28s produced a wide, especially deep and expansive soundstage, with an absence of grain. The midrange sounded superbly natural, the high frequencies smooth yet detailed. With the KEFs, the balance was a little on the polite side, though the GamuT speakers proved a synergistic match. With Iván Fischer and the Budapest Festival Orchestra performing Rachmaninoff's Symphony 2 (DSD64, Channel Classics 21604), the M28s produced an enormous sweep of sound at the climaxes, with no tendency toward glare or the treble balance becoming congested, and the Tchaikovsky-esque brass scoring had just the right amount of "blattiness," in the late J. Gordon Holt's wording. The big violin tune in the slow movement—there is no punishment severe enough for Eric Carmen's stealing this tune for his 1976 hit "Never Gonna Fall in Love Again"—maintained its tonal composure as the volume increased, with no audible signs of intermodulation-type distress.

Michael's main criticism had concerned the M28's reproduction of the low frequencies. Certainly, with the Rachmaninoff, the doubles basses dug down deep. In "My Rival," from Steely Dan's *Gaucho* (24-bit/96kHz ALAC file transcoded from FLAC, HDtracks/MCA B0000868-36), the bass guitar and kick drum sounded rich but tight with the Bricastis, and weightier than with the Ayre MX-R Twenty amplifiers reviewed elsewhere in this issue. Certainly the weak spot of the otherwise superb Pass Labs XA60.5 monoblocks that I reviewed in January 2014[5] was their bass register—the Bricastis readily outclassed the Passes in that respect.

Given Bricasti's provenance—the company was founded and its products designed by Madrigal and Harman alumni who had been involved with the Mark Levinson brand—I would have loved to have been able to compare the M28s with the samples of the Mark Levinson No.33H monoblocks I purchased back in 1998, However, one of my '33Hes has had a broken power supply for several years now, and fixing it has been too long on my to-do list. (A task that is neither urgent nor important tends to get a low priority.) But the M28 didn't seem to have the rather dark balance that I remember the Levinsons having.

In my review of the KX-R Twenty,[6] I had commented on the paradox that the system sounded better with the Ayre preamplifier than with a volume-control–equipped DAC feeding the power amplifiers directly. But in an e-mail exchange with John Marks, he had mentioned that he got great sound from the Bricasti DAC without using an intervening preamplifier. I therefore connected the PS Audio PerfectWave DirectStream DAC directly to the M28s, matching levels to within 0.15dB to those I had used with the Ayre preamplifier for the same selections of music. (The PS Audio's volume control was generally set to provide 12–20dB of attenuation.)

To my surprise, with the levels matched, the PS Audio feeding the M28s sounded slightly quieter. But there was a noticeable improvement in clarity. John Barbirolli's rather muddy-sounding 1962 traversal of Elgar's *Cockaigne Overture*, with the Philharmonia Orchestra in London's Kingsway Hall (ALAC file ripped from CD, EMI Classics CDM 7 64511 2), lightened up, but without the brass instruments sounding harsh. But Giuliano Carmignola and Mayumi Hirasaki's brisk performance of J.S. Bach's Double Violin Concerto, BWV 1043, accompanied by Concerto Köln (ALAC file ripped from CD, Deutsche Grammophon Archiv 0289 479 2695 5), now sounded a little too shrill. Certainly the M28's rather laid-back balance was now less polite, a little more vivid. The Channel Classics Rachmaninoff still sounded sweet—and the solo violin in the first movement was deliciously tangible—but the low instruments sounded a bit too gruff and less authoritative without the Ayre preamp in circuit.

On balance, with the PS Audio DAC I think I preferred the Bricasti M28s used with the Ayre preamp. But either way, this was definitely superbly involving sound. It was time, therefore, to replace the PS Audio with the Bricasti M1, again without a preamplifier and primarily with the M1's reconstruction filter set to "Minimum 0." With the Bricasti D/A processor driving the M28s directly and its volume-control settings ranging between "–22dB" and "–11dB," to match as closely as possible the volumes with the PS Audio both used direct and with the Ayre preamplifier for each music track, this was the best sound I obtained with the M28s. The midrange remained as sweet and detailed as it had been with the PS Audio PerfectWave DirectStream, and the highs were in better balance with the mids.

More important, the low frequencies in the Rachmaninoff were both better defined and had more weight with the M1 driving the M28s directly. Pino Palladino's Fender bass, played with the heel of his right hand damping the strings at the bridge, on *Where the Light Is: John Mayer Live in Los Angeles* (ALAC ripped from DVD, Sony 722727), had full weight. The PS Audio was slightly better at presenting reverberation tails in my recordings of the Portland State Chamber Choir, but the M1's more forward signature worked better with the M28s.

The M28's sound still has a more polite balance than that of the Ayre MX-R Twenty, but used in an empathetic system—particularly in one optimized for classical orchestral music—it will produce true reference-quality sound. Overall, I very much enjoyed the time the Bricasti M28s spent in my system. They worked best with Bricasti's own M1 driving them directly, particularly with the laid-back KEF Blade Twos. Yes, at $30,000/pair this is an expensive amplifier, but if you want the reliability of a solid-state design with the smooth-balanced midrange magic of tubes, and low frequencies that are sufficiently well developed, the Bricasti M28 is indeed a Class A contender.**—John Atkinson**

4 See www.stereophile.com/content/bricasti-design-m1-da-converter.

5 See www.stereophile.com/content/pass-labs-xa605-monoblock-power-amplifier.

6 See www.stereophile.com/content/ayre-acoustics-kx-r-twenty-line-preamplifier.

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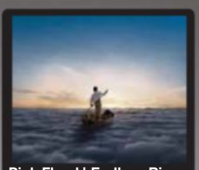

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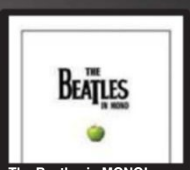

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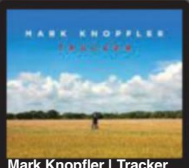

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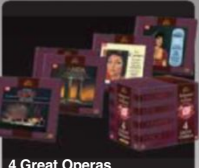

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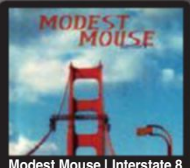

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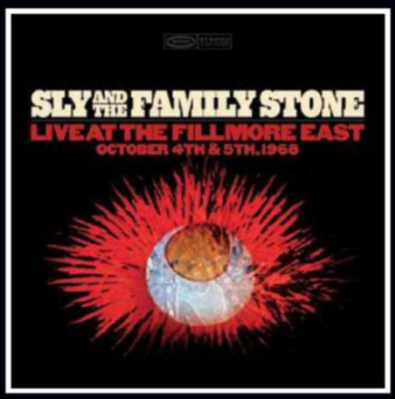
RECORD REVIEWS

EDITOR'S PICK

RECORDING OF THE MONTH



SLY AND THE FAMILY STONE
Live at the Fillmore East, October 4th & 5th, 1968

Epic 88843023712 (4 CDs). 2015. Sly Stone, orig. prod.; Bob Irwin, reissue prod.; Vic Anesini, mastering. AAD? TT: 3:27:31
PERFORMANCE ★★★★★
SONICS ★★★★½

The first thing you hear is not Sly Stone's keyboards or harmonica. Not Freddie Stone's guitar. Not Greg Errico's amazing drumming. Not Larry Graham's slapping bass. Not the voices of Rose Stone (also keys) and Cynthia Robinson (also trumpet), nor Jerry Martini's saxophone.

No. The first thing you hear is pure energy: the nuclear reaction of musical power that Sly and his Family Stone generated onstage on two October nights in 1968 at the Fillmore East. James Brown and his band(s) had nothing on these seven. This is prime Sly, when the band was still hungry, before the hits, before his life spun out of control, the music suffered, and the family split.

What may be even more unbelievable than the music here is the fact that these four sets, released in July 2015 as *Live at the Fillmore East, October 4th & 5th, 1968*, were at one time slated for release in some form in early 1969, but were shelved by Epic Records when Stone's "Everyday People" became a hit. Not to stomp on sour grapes, but it's mind-boggling today, when the music market is flooded with disposable, less-than-thrilling content, that in 1968 Epic's parent label, Columbia Records, had so much compelling music to release that they could afford to leave this firecracker on the shelf.

In October 1968, the first major American rock band to be integrated, and that indeed included two other members of Sylvester's family, was just back from the UK, where they'd had conflicts with promoters, gear problems, and Larry Graham had endured a pot bust. By the time they took the stage at the Fillmore they'd also written and recorded "Everyday People," the tune that sealed the fate of the resulting live recordings.

Described as being "professionally recorded," this set has the skimpiest liner notes and recording information of any major release in many years. Sly is listed as producer for his Stone Flower Productions. Calls to Sony confirmed that the shows were recently mixed for this release by Bob Irwin and Joe Palmaccio, and mastered by Vic Anesini at Battery Mastering, in Manhattan. No engineer is listed. These weird oversights aren't overly critical, because this is a high-quality, three dimensional, multitrack live recording—which makes its 47-year absence all the more bizarre. The imaging is solid, and the sound is clear and natural, with no dropouts, overloaded microphones, or the tape hiss that dogged some later Sly studio recordings, a side effect of his obsessive overdubbing. A two-LP best-of set, its cuts selected by "Captain" Kirk Douglas, of the Roots, was released in April 2015 for Record Store Day.

While the set lists of the four show are very similar, focusing on material from the two (!) albums the band released in 1968, *Dance to the Music and Life*, it's the second show on October 4 that stands out. Sly shouts the first tune's count-off and the band launches into "M'Lady," which then, without missing a beat, morphs into "Don't Burn Baby." Crazy as it sounds, the whole thing is wonderfully loose yet incredibly tight at the same time. The tempos vary from urgent to downright fast. Throughout, this is a band that cannot be fooled. No turn is too sharp, no curb too high. This is jamming at its most elastic: gritty, heartfelt funk with horns rising to high art. Album-jacket photos confirm that Sly led this wondrous mass of music from center stage, singing, playing organ, and leading the many vocal breaks, which consist of singing, shouted phrases, and rhythmic scatting that can be considered proto-rapping.

What seals the deal that this was a band for the ages, bursting with talent, ideas, and spirit, is their astonishing rendition of the jazz standard "St. James Infirmary." Using a bell mute, Robinson plays the melody while the great Graham plays funky counterpoint behind her. Eventually, Sly's organ joins in, but as was usual with this band, the tune stops and starts several times. It's easily the funkiest version in existence of this oft-played standard. A headlong mash-up of Sly's "Turn Me Loose" and Otis Redding's "I Can't Turn You Loose" is a loud/soft/loud-again extravaganza, complete with Stax-like horn accents and driven by the mad-fast drumming of Errico, unwinds into an unexpected harmonica solo by Sly. It's a cliché, but the grooves the Family Stone generates here are monstrous—you get the feeling they could play anything, make any song their own. While here the fire was funk, by this point they were also a nimble R&B band that was the equal of any of the great house bands that then existed: at Stax in Memphis, or Motown's Funk Brother, or the Muscle Shoals Swampers.

If there's a down note, it's that the might and musicality here are so astonishing to modern ears, 47 years after it was recorded. In today's music, where can you find this kind of energy and excitement?—**Robert Baird** ■

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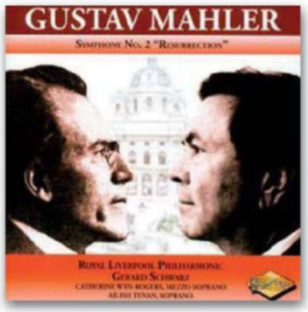


MAHLER
Symphony 2, "Resurrection"

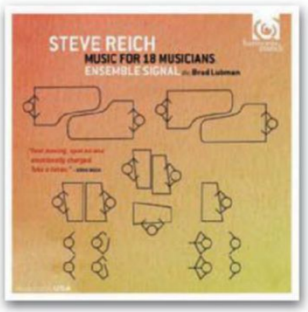
Catherine Wyn-Rogers, mezzo-soprano; Ailish Tynan, soprano; Royal Liverpool Philharmonic Orchestra & Choir, Gerard Schwarz
Artek 0061-2 (2 CDs). 2015. Michael Ogonovsky, prod.; David A. Pigott, eng. DDD. TT: 80:37

PERFORMANCE ★★★★½
SONICS ★★★½★

First, this performance could have fit on one CD. Second, Mahler asked for a pause between the first and the remaining four movements, which could have been achieved by putting those final four on disc 2, instead of the first four movements on disc 1, as here. Does anyone at Artek pay attention? Third, the recording level is so low that you have to turn up the volume to make Mahler's explosions effective, which is too bad—they are, for the most part, beautifully judged and played, with some nice surprises in the last movement: a quick, forceful entry of the male voices near the end that sets us up for the huge drama. The gentle second movement goes by almost unnoticed due to the low recording level, and the "St. Anthony" movement lacks wit at the start and anguish near the end. Catherine Wyn-Rogers sings the fourth movement, *Urlicht*, beautifully, but Mahler wanted the fifth movement to follow immediately on its tail, *attacca*—having to swap out discs loses that fabulous effect.

Schwarz's Mahler has been successful on CD—his Symphony 4 is terrific—and there's much to enjoy here: the perorations are thrilling in the first and last movements, and orchestral detail is fine. But the wrong-headed disc break and weird sound won't do. Dynamite performances are easily found: Bernstein on DG and Slatkin on Telarc are just two.—**Robert Levine**

EDITOR'S NOTE: *As I have written repeatedly in this magazine, when the recording level is low, that means the recording has wide dynamic range. In this case, while you have to turn up the volume, Mahler's "explosions" are captured and played back without compression.*—**JA**



REICH
Music for 18 Musicians

Brad Lubman, Ensemble Signal
Harmonia Mundi HMU 907608 (CD). 2015. Michael Reisman, prod., eng. DDD. TT: 59:17

PERFORMANCE ★★★★★
SONICS ★★★★★

This piece from the mid-1970s is a cornerstone of 20th-century music. Here, Reich refuses to tell a story or write predictable music; *Music for 18 Musicians* has no middle, beginning, or end. The unifying element is its pulsing, perpetual-motion rhythm, its changing textures, its inner harmonies and jigsaw-puzzle links. It defines minimalism in all of the best, most articulate ways. Early-music lovers might even realize the debt Reich owes to Léonin and Pérotin, whose 12th- and 13th-century compositions were the first to use polyphony: different rhythms and voices sounding at the same time. With 18 instruments—and four voices singing wordless syllables—at Reich's disposal, the sound possibilities are close to infinite; they're what keep the work going, and keep it fascinating. Most people hearing it for the first time at first say, "What *is* this? It's too repetitive." By the time they've reached the end, they've said, "Wow!" and "Wait—are those voices?" and "Jeez—marimbas!" and "*Four* pianos?!" Also, frequently, they want to dance. It becomes, somehow, an almost endlessly fascinating rite. With bass clarinets.

I'd never heard Ensemble Signal before (as far as I can tell, this is only their second recording), but for accuracy, transparency, and sheer *joie de musique*, they beat even the 1978 ECM recording led by Reich, which has sold well over 100,000 copies. It helps that the engineering is magnificent, every texture audible but not underlined in that "early digital" way. Reich himself has called this performance "Fast moving, spot on and emotionally charged." Amen.—**Robert Levine**

VIVALDI
The Four Seasons; Cantata, "Cessate omai"; Aria, "Gelido in ogni vena," from Il Farnace

Dmitry Sinkovsky, violin, countertenor, conductor; La Voce Strumentale
Naïve OP30559 (CD). 2014. Laure Casenave-Péré, prod.; Etienne Grossein, eng. DDD. TT: 61:04

PERFORMANCE ★★★★½
SONICS ★★★★★

This performance of *The Four Seasons* is fantastically conceived, without going outside of the music (no trombones or tam-tams or electric enhancement), by Russian violin virtuoso and conductor Dmitry Sinkovsky, who is also a countertenor with a fine voice. He sings on this CD, but only once does he do all three at the same time. His 11-piece band includes two harpsichords, double bass, baroque harp, and archlute, but is otherwise simple—all period instruments, of course. The performances are unique in choices of tempos, emphases, colors, and embellishments—sometimes wild, always honest, and "new" in a way that makes one listen more carefully, probably, than ever before. And they're wild fun. From the tiny solo flourishes that introduce the slow movements to the manic alterations in tempo and dynamics that clearly grow out of the poems that Vivaldi used as inspiration, we get: a storm to remember; a sense of real danger as *Winter* arrives, with baroque harp and squeaking violin; and a creepy harpsichord intro as the slow movement of *Fall* arrives, followed by a most bumpkin-like jollity in the finale.

Sinkovsky lends his beautiful, expressive voice to the cantata "Cessate omai," a lover's lament placed between *Summer* and *Fall*; and to "Gelido in ogni vena," from Vivaldi's opera *Il Farnace*, with its beginning that seems at first like a fifth season, but is the self-hating lament of a father looking at the dead body of his son. In short, a unique, necessary, and madly impressive collection.—**Robert Levine**

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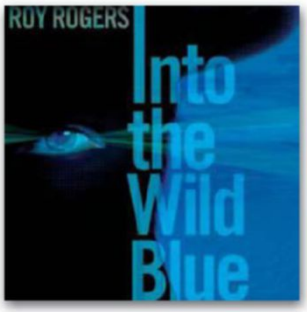


ROY ROGERS
Into the Wild Blue

Chops Not Chaps CNC-40115 (CD). 2015. Roy Rogers, prod.; Joel Jaffe, eng. DDD. TT: 43:00

PERFORMANCE ★★★★★
SONICS ★★★★½

This is the Promised Land Chuck Berry was leading us to. Roy Rogers is like Chuck Berry in that, while a blues guitarist at heart, he's always intent on taking the music to new places. He mastered the Robert Johnson codex early in his career, then concentrated on producing as he shepherded John Lee Hooker to his late-life, Grammy-winning renaissance. Since then Rogers has sought to expand the contours of blues nomenclature, working with fellow genre-busting virtuosos like Bonnie Raitt, Ramblin' Jack Elliot, and banjo maestro Béla Fleck. Rogers spent recent years collaborating with the late Doors keyboardist Ray Manzarek. He was the best songwriting partner Manzarek had had since Jim Morrison, and the experience affected Rogers's own songwriting. In such songs as "Got to Believe," "Love Is History," and "Don't You Let Them Win," it's almost as if Manzarek's spirit is sitting on Rogers's shoulder. Rogers enlisted lyricist Donna Johnston for the blistering breakup anthem "Losin' You" and the atmospheric rocker "Dark Angels." In "Last Go-Round," he layers guitar parts in twisted syncopation as drummer Kevin Hayes and bassist Steve Ehrmann cut an intense backbeat groove. Rogers includes three great guitar instrumentals that showcase his chops with skillfully overdubbed orchestrations. All of this acts as prelude to a beautiful, album-closing eulogy for his brother, "Song for Robert (A Brother's Lament)." The songs are balanced to perfection on this album of a lifetime—a distillation of everything that has made Roy Rogers such an important blues artist over the years. His signature slide playing is superb, and the band rocks with precise abandon. A masterpiece.**–John Swenson**

JAZZ

HARRY ALLEN
For George, Cole and Duke

Harry Allen, tenor saxophone; Ehud Asherie, piano; Nikki Parrott, bass, vocals; Chuck Redd, drums, vibes; "Little Johnny" Rivero, percussion
Blue Heron 0001 (CD). 2015. Chuck Redd, prod.; Michael Brorby, eng. DDD. TT: 70:28

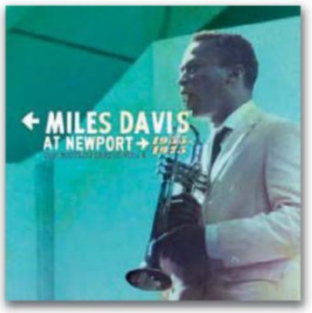
PERFORMANCE ★★★★★
SONICS ★★★★★

In 2015, the jazz art form is vital and diverse. Most of its current iterations require the listener to *work*. You must fully engage your cognition and imagination in order to deal with abstraction, displacement, fragmentation, interruption, and unresolved ambiguity. Often, jazz musicians portray the stresses and conflicts of our time.

Not Harry Allen. He is only 48, but his spiritual home is the swing era, pre-Bird. His tenor saxophone warms like a caress. There is something decadent about a groove so relaxed. Listening to Allen is so sensually gratifying it feels illegal. He is a guilty pleasure because jazz is not supposed to be this pretty. Is it?

Allen's new album contains lesser-known songs by Gershwin, Porter, and Ellington. "By Strauss" shows how Allen can swing anything, even a tricky Gershwin waltz. It also shows how elegant melodic variations flow from him, seemingly without effort, as if he has opened a valve. Porter's "Love for Sale" is refreshed as a mambo. A slow, languid piece like Ellington's "Happy Reunion" is in Allen's wheelhouse. Bassist Nikki Parrott doubles as a singer. Her "In a Mellow Tone" and "Mood Indigo" are clear and sweet.

But Allen's true anointed tempo is none of the above. It is a certain mellow medium lilt, as in Gershwin's "They All Laughed," which sweeps Allen up like a river and gently floats him downstream. The lyricism is so pure, it already exists in your subconscious. You don't have to work for it. It's addictive. Most guilty pleasures are.**–Thomas Conrad**



MILES DAVIS
At Newport 1955–1975: The Bootleg Series Vol.4

Miles Davis, trumpet, organ; 28 others
Columbia/Legacy 88875081952 (4 CDs). 2015. Teo Macero, Heinz Wehrle, orig. prods.; Richard Seidel, Michael Cuscuna, release prods.; Adjutor Theroux, Buddy Graham, Reice Hamel, Klaus Koenig, engs. ADD? TT: 4:55:39

PERFORMANCE ★★★★★
SONICS ★★★★½

Life is good. Sony has just delivered another volume in the Miles Davis *Bootleg Series*. The first three editions were specific to a band and year. *Vol.4* encompasses 20 years and six different ensembles. Very different.

The material comes from live concerts produced by George Wein for his Newport Jazz Festival organization. As a unifying theme, it's a stretch. But these four CDs contain four hours of Miles music new to the world.

Vol.4 documents an artist who kept fearlessly reinventing himself. In 1955 he was a seminal post-bop trumpet player. By 1958 he was moving toward modal freedom. By 1966 he was obliterating previous notions of small ensemble form. By 1969 he was going electric. By the '70s he was abandoning jazz for funk and pandemonium. It's all here.

The previously unissued material contains three additions to the Jazz Holy Grail Archives. The first is a historic jam session in 1955. In "Hackensack" and "Now's the Time," Miles, Zoot Sims, Gerry Mulligan, and Thelonious Monk are young and invincible. Miles and Monk do an early, edgy, existential "'Round Midnight." The other two are sets by the Second Great Quintet. At Newport in 1966 and 1967, they were consumed in flame. In "Stella by Starlight," Miles is wild and sublime. "Footprints," with Herbie Hancock splashing and careening, beside himself, joins the greatest versions of Wayne Shorter's greatest song.

Sonically, *Vol.4* is a crapshoot. Only a fool would complain.**–Thomas Conrad**

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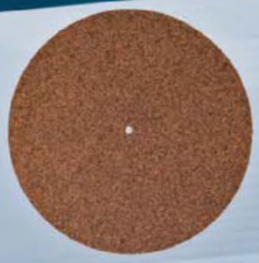

I love this mat! The sonic virtues are apparent immediately - bass tightens up, vocals come forward, and more air is put around the instruments. - *BRIAN LICKEL, ND*

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GIOVANNI GUIDI
This Is the Day

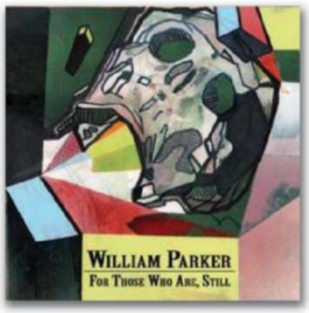
Giovanni Guidi, piano; Thomas Morgan, bass; João Lobo, drums
ECM 2403 (CD). 2015. Manfred Eicher, prod.; Stefano Amerio, eng. DDD. TT: 73:16
PERFORMANCE ★★★★½
SONICS ★★★★½

Many of the best living jazz piano players are Italian: Stefano Bollani. Enrico Pieranunzi. Danilo Rea. Stefano Battaglia. And another Italian generation is coming up behind them, of whom the most talented is Giovanni Guidi.

Guidi is best known for his work with Enrico Rava, but he's been making strong records of his own for 10 years, since he was 20. In concert he can be jagged and loud. *This Is the Day* is his second recording as a leader for ECM. Like the first, *City of Broken Dreams*, it presents Guidi's more thoughtful, poetic side. It also reveals that, among the Italian pianists, he may now be the best composer. Here are exquisitely timed, gradual unfoldings like the two variations of "Trilly" (melodic arcs of grace curving in space) and "The Night It Rained Forever" (rapt with recurrent tremolos).

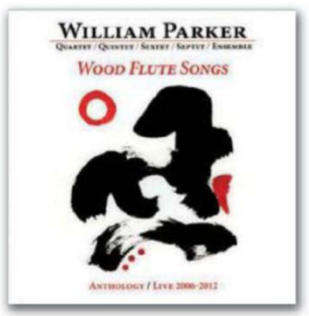
Guidi has grown not only as a composer but as an interpreter of standards. "Quizas Quizas Quizas" and "I'm Through with Love" were sung by Nat "King" Cole. In Guidi's versions, 60 years on, Cole's lush romanticism is refracted through postmodern reality. It is still seductive, but more complicated, and darker.

This album presents not one but two of the most exciting players to enter jazz in the new millennium. Thomas Morgan's prominent role in Guidi's trio is reminiscent of Scott LaFaro's with Bill Evans. In the presence of a supremely lyrical pianist, only a few bass players have ever been able to continuously elevate the ensemble discourse and to deepen the atmosphere with rarefied lyricism of their own.–**Thomas Conrad**



WILLIAM PARKER
Ceremonies for Those Who Are, Still

William Parker, double bass; many others
Aum Fidelity AUM092-4 (3 CDs). 2015. William Parker, Steven Joerg, prods.; Petr Cancura, eng. DDD. TT: 3:40:00
PERFORMANCE ★★★★
SONICS ★★★★½



Wood Flute Songs

William Parker, double bass; many others
Aum Fidelity AUM080-87 (8 CDs). 2013. William Parker, Steven Joerg, prods.; Jeff Wilson, Ryan Peterson, others, engs. DDD. TT: 9:46:32
PERFORMANCE ★★★★★
SONICS ★★★★½

Double bassist and composer William Parker is involved in so many projects it's hard to keep track. Wherever you encounter his music, prepare for revelation. These releases document two very different iterations of Parker's work. *Ceremonies* includes "For Fannie Lou Hamer," a complex piece for 12 instruments recorded at The Kitchen in NYC, October 2000; "Red Giraffe with Dreadlocks," a 2012 world-music composition for octet with spoken-word segments; and the beautiful title piece, recorded in Poland in November 2013 with Parker's quartet, accompanied by the Wroclaw Philharmonic Orchestra and Choir.

The eight CDs of *Wood Flute Songs* comprise live performances from one of the finest improvisational units of the 21st century. In May 2000, Parker assembled alto saxophonist Rob Brown, trumpeter Lewis Barnes, and drummer Hamid Drake to record *O'Neal's Porch*. Since then the quartet has constructed a rich musical history, cruising the jazz omniverse, especially the post-1960s exploration of the connections between free improvisation, blues, R&B, and world music. Discs 1 and 2 capture two 2006 sets from Yoshi's, in Oakland, California. Set one begins with a ruminative 10-minute bass solo from Parker that sets the tone for "Tears for the Children of Rwanda." By the time they reach the third composition, "Groove #7," the listener has been around the world of musical expression. Parker plays with relentless strength through shifting time signatures, the pulse at the heart of the band's harmonic makeup telepathically matched by Drake's propulsive, melodic drum patterns. Brown and Barnes are brilliant, both individually and in unison passages.

Set two opens with Parker's homage to Don Cherry, "Wood Flute Song." As elsewhere in these recordings, here Barnes seems to channel Cherry. This set also includes a magnificent tribute to bassist Malachi Favors, "Malachi's Mode."

For a set at the 2009 Vision Festival (disc 5), Parker added James Spaulding on alto, Bobby Bradford on cornet, and Billy Bang on violin. This completely improvised music—it includes "Gilmore's Hat," for Sun Ra's tenor saxophonist John Gilmore—is an unmitigated triumph of spiritual beauty. Bang sounds transported in service of the Jenkins material.

Bang followed Jenkins to the afterworld five days after the William Parker Creation Ensemble debuted the beautiful "Psalm for Billy Bang." For this performance at the 2011 AMR Jazz Festival, in Geneva, Switzerland (disc 6), Parker augmented the quartet with another bass and trumpet, bass clarinet, and soprano, alto, tenor, and baritone saxophones.

For Suoni Per Il Popolo, held in Montreal in 2012 (disc 7), the quartet was joined by pianist Eri Yamamoto and singer Leena Conquest, the extraordinary talent featured in Parker's Raining on the Moon band. Fortunately, two unreleased tracks from that band's sessions for *Corn Meal Dance* (2007) are included on disc 8, which features a 2012 Vision Festival performance with the quartet joined by Cooper Moore on piano—a fitting conclusion to this historic project.
–**John Swenson**

CONTINUED FROM PAGE 11

The elephant in the room

Editor:

John Marks's "As We See It" editorial in June, "Abandon Folly, Not Hope" (p.3), touched on some important points but missed the elephant in the room: how our hobby is being impacted by income inequality. $20,000 speakers being rare in 1982 yet common today is a perfect example of the income-inequality trend. More at the top have big houses and can afford the "trophy systems." In the meantime, the middle class is shrinking. Where the baby boomers bought big houses and had the space and the income for a component system, Gen X/Y/millennials are having to downsize. Many are living in smaller apartments and condos, especially in urban areas where housing costs have skyrocketed.

How does this affect our hobby? I don't think it is as simple as a cultural shift of music becoming a background experience. People in the 1970s boogied with disco in the background too. In today's world, it just doesn't make logistical sense to have a component rack and big box speakers in a 600-square-foot urban condo, even when people can afford them.

What is the answer to income inequality? That's a bigger political question. But JM's comments are on the right track. As with climate change, only fools deny that income inequality is happening. Our hobby is just going to have to adapt.

—Drew Edmonds
Seattle, WA
hifiandrew@yahoo.com

*I wrote in March 2011 about the effects on the audio industry of increasing income equality and the diminishing middle class (see www.stereophile.com/content/upward-price-spiral). With the middle segment of the audio market most affected by these economic realities, you now see an explosive increase in the number of very expensive audio components. This is because, as I explained then, for a small, privately held company—and the majority of specialty audio manufacturers are indeed small companies—there is less financial risk in offering a small number of very expensive products than a much larger number of affordably priced products. To design and build a product for the bottom end of the audio market requires large amounts of borrowed capital; failing to meet that product's sales target therefore will endanger the company's continued existence.***—John Atkinson**

Stop comparing

Editor:

I can't pinpoint the beginning of "Comparisons" sections, but they are now an ever-present part of product reviews. This causes a feeling that has crept into society of competition being necessary for living. We are bombarded by the oppressive ubiquitous specter of competition in the media, the workplace, and the streets. It is difficult not to see it as the paradigm controlling our lives!

Reviews can be useful and pertinent by expressing the attributes of the item reviewed, free from the oppression of comparisons.

—Carlos E. Bauza
bauzace50@yahoo.com

*We usually receive complaints that there are not enough comparisons with competing products in our equipment reports, Mr. Bauza. I do feel that comparisons with similar products that have already been reviewed and with which readers will be familiar are essential. The only exceptions are large, heavy loudspeakers; there, the logistics of arranging appropriate comparisons are beyond our capabilities.***—John Atkinson**

1000-Base BS

Editor:

It's so depressingly irresponsible for *Stereophile* to review, discuss, advertise, or even acknowledge the existence of "high-end" Ethernet cables. To claim any audible difference, regardless of run length or associated equipment, is to admit a fundamental lack of understanding of how

As with climate change, only fools deny that income inequality is happening.

Ethernet works. Even 24-bit/192kHz audio occupies such a small fraction of the gigabit Ethernet data payload. From here, we could get into a lengthy discussion of Ethernet frames, error correction, preambles, stop-bits, encoding, and buffering. Silver conductors and Teflon-braided shielding won't help, dude. It's beyond measurements or double-blind listening tests. It's simply not possible. And [the manufacturers] know this.

—Christopher Eriksen
San Jose, CA
cferik@gmail.com

Thank you for writing, Mr. Eriksen. Regarding advertising of Ethernet cables, it is perhaps difficult for people not involved in publishing to comprehend that the "Wall of China" that exists between editorial and advertising departments works in both directions. Just as there is no influence from advertising on Stereophile's *content, I don't get to see what ads say until I see the magazine when its readers do: when it is printed.*

Regarding reviews and discussions of Ethernet cables, there is absolutely no doubt that audio data packetized and transmitted via a network are identical at the destination to what those data were at the transmitting end. No one disputes that. But having directly compared two Ethernet cables and perceived audible differences, I feel there must be some other explanation. See, for example, Michael Lavorgna's informative articles on our sister site AudioStream.com: www.audiostream.com/content/cables-bits-and-noise-how-cables-can-make-sound-difference and www.audiostream.com/content/digital-cables-and-noise.
—John Atkinson

To Play or Not to Play

Editor:

Jason Victor Serinus's article "To Play or Not to Play" ("As We See It," March, p.3) caught our attention. As a manufacturer of loudspeakers, we see trade shows as a venue to have our products perform their best and in a way that engages the audience. With that being said, there is really no such thing as a product without any weakness that performs beyond reproach in all setups. The search for greater levels of perfection keeps our industry moving forward, yet it can be a stumbling block for trade-showgoers looking to find sonic nirvana.

It is expected that manufacturers show their best technology and designs with amazing sonic results. The rub is trying to define *amazing sonic results*. By carefully selecting source material to play, an exhibitor will have some control over the performance. When new source material is requested, the results are totally unknown until the needle drops or the Play button is pressed. There is a certain level of excitement, maybe more toward anxiety, when playing unknown songs, but it is truly at the risk of disappointing a large part of the audience.

So it is a gamble—a gamble that may not be worth taking during standard show hours. For those who bring their own music to an exhibit, it is fair to ask that person to return for a private audition—or, better yet, to arrange for a private audition at their nearest dealer location. This provides the customer with a better, more pristine sample of their music, with no distractions.

—Luke Zitterkopf
President, Aluminous Audio
Luke@aluminousaudio.com

MANUFACTURERS' COMMENTS

THIS ISSUE: Wilson Benesch, Falcon Acoustics, Rega Research, and Ayre Acoustics comment on our reviews of their products.

Wilson Benesch Square One

Editor:

Back to the future with the Sound Organisation of Dallas! Thanks go to the intellectual and musician who is John Marks, for our first review in print in the US after many years. It was a delight to read from every conceivable angle. We look forward to working in the US in future years, with great business partners and tried and tested products.

Craig and Christina Milnes
Wilson Benesch

Falcon Acoustics LS3/5a

Editor:

I want to thank Herb Reichert for penning such a fine piece on the new Falcon LS3/5a classic BBC monitor. Also, many thanks to John Atkinson and *Stereophile* for allowing this piece to be written and included in this issue.

The only comments I can offer pertain to my experience and why I chose to import the Falcon. In the middle 1970s, I happened on a fine audio store in Blacksburg, Virginia, home of Virginia Polytechnic. The store happened to have on display the Luxman MB 3045 amplifiers. At their suggestion, I visited a customer who was using the amps with the 15 ohm version of the LS3/5a incorporating the KEF B110 and T27 drive-units. He was an engineering student and was producing his own preamp. I believe the company he was founding at that time is still in existence. It was my first experience with the speakers, and I was blown away completely.

Like all good audiophiles, I lusted after this new find, and before long I had a mad wife and a pair of MB 3045s and the LS3/5a's. Many of my friends—it seems like we all were into great music and equipment back then—acquired the same or a similar system using the LS3/5a, and we were all in audio Nirvana.

Although numerous versions of this speaker have been offered over the many years since their introduction, the magic I remembered from that first experience was reawakened only once—when I received the initial sample of the Falcons and dropped the needle.

Herb's review of the Falcon LS3/5a represents so many of the things that drew me and thousands more to the classic and authentic LS3/5a that I find no comment necessary other than Thank You, Herb, for sharing your thoughts on this truly authentic version of a classic masterpiece.

Steve Davis
Big Ear Consulting

Rega Research DAC-*R*

Editor:

I read Jon Iverson's review of the DAC-*R* with interest, and more so as an engineer whose first job, some 40 years ago, was building tube (valve) guitar amplifiers in a professional audio company. So I fully understand his thoughts as to the voicing of audio equipment—more so in the world of musical equipment. In the DAR-*R*: As with any electronic audio unit, there is a balance between electronic measurements and voicing (sonics), and I feel this review highlights the right balance achieved with the Rega DAC-*R*.

There are a couple of points I'd like to comment on:

Optical input at 96kHz: We have changed the TosLink receiver to a part, from a different manufacturer, that has better performance at high sample rates, thus making the optical inputs more reliable. The comment concerning optical leads still stands, though.

Power-supply conjecture and the 120Hz (100Hz UK) leakage: I measured the power supply feeding the analog supply of the DAC integrated circuits in a current production unit, and found the 100Hz (120Hz US) ripple rejection measured 78.8dB below the unregulated supply—this being a typical figure for the linear regulator used in the Rega DAC. Just to confirm that the measurements were what I'd expected, I looked up the regulator in my trusty ol' National Semiconductor *Voltage Regulator Handbook*, and the typical ripple-rejection ratio for the regulator in question is 80dB—so in the context of the overall design, I personally feel that all's fine here. The supply pins on the DAC integrated circuits are decoupled using low-ESR polymer capacitors, which helps.

Taking into account Jon's musical slant to the review, and drawing on my experience of tube guitar amplifiers, I know only too well how power-supply character can affect the sound of a piece of equipment—anyone who knows the circuit of a typical 1950s/'60s tube amplifier with a tube rectifier will know just how much the effectiveness and traits of the power supply can enhance the sonics of a unit.

As regards filters, I've taken a look over my shoulder to see what filter is currently selected on the DAC-*R* in my front-room system, and it's Filter 3—snap! Out of interest, this system includes a 6BQ5 (EL84) based amplifier—that's for anyone who's seen the inscription on the PCB inside.

Terry Bateman
Electronics Design Engineer,
Audio Guru, Purveyor of Audio Mojo
Rega Research

Ayre Acoustics AX-5 Twenty

Editor:

Many thanks to Art Dudley for fully engaging with the Ayre AX-5 Twenty so that *Stereophile* readers can understand the improvements over the original, which Art had described as "one of the three best, most musical, and most human-sounding solid-state amps I've ever heard."

Apologies to Art for not making it clear that, just as with the Ayre R-series products, the Twenty version of our AX-5 is not merely an upgrade. The differences are so great that bringing the previous model up to the new design requires a complete replacement of both audio circuit boards: same classic chassis, all new circuitry. It is truly a new model of amplifier.

In the review, Art pointed out that the AX-5 Twenty's inputs need to be set up before use. This step was a conscious choice on our part. Our setup gives the owner the ability to make custom names for the inputs that are in use (as Art did) and disables the unused inputs. This makes for much more pleasant operation over the life of the AX-5 Twenty, but we can see how it could be slightly frustrating for a reviewer who has the product for only a short time.

In closing, while we are a bit disappointed that the AX-5 Twenty fell just short of sending Art running naked through the streets of his village, perhaps it is for the best. This does, however, set an excellent goal for our next product.

Charles Hansen and the Ayre design team
Ayre Acoustics

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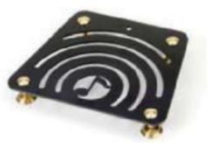

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– *The Absolute Sound*, September, 2014

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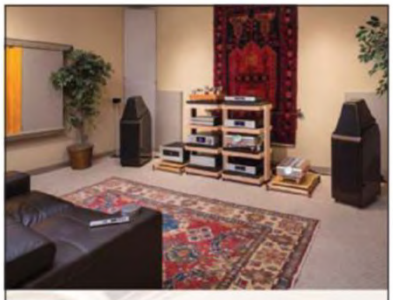

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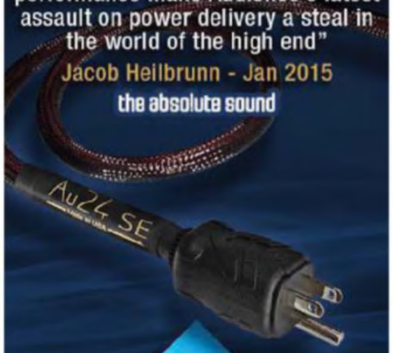

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JAMES JAMERSON JR.

Free bassing

Clearly, they feel unloved and unappreciated . . . and perhaps they're right. Despite doods like Krist Novoselic, JPJ, Lemmy, John Entwistle, and Sir Paul, and female voices such as Tina Weymouth, Carol Kaye, and Kim Deal—not to mention the many jazz greats, like Charles Mingus—bass players, if not quite the butt of jokes that drummers have long been (Google "drummer jokes" and enjoy), are musicians too, you know. [*sniff*] Search on "bass player" and up comes a website with the huffy, slightly defensive URL forbassplayersonly.com. On Buzzfeed.com, under the heading "21 Struggles Only Bass Players Understand," some choice entries read: "You constantly get asked do you play bass because it's easier?" "Someone will inevitably ask you to do 'that Seinfeld bass thingy'." "After you've played your set your friends tell you, 'You guys were great but I couldn't really hear you.'" Yet, every once in a while, someone remembers the bass player. Or you just can't help but notice them.

As I listen to the Alabama Shakes' new record, *Sound & Color*, pressed on clear vinyl—slightly warped, with a spindle hole not cleanly punched—what stands out is how Zac Cockrell's bass was recorded, and the central role it plays in many of the tunes, like the spacey "Gemini" or the obvious single, "Gimme All Your Love," in which Brittany Howard unleashes her titanic voice. While the spacious, psychedelic, slow-burn groove of *Sound & Color* is the perfect way to defeat any expectations of sophomore slump, Cockrell's bass keeps appearing more forward in the mix than is usual in indie rock, at times even carrying the melody. It reminded me, yet again, that the bass can be more than mere underpinning.

After the recent death of Louis Johnson, another player entered my consciousness when I began idly reading an advance copy of *Snakes! Guillotines! Electric Chairs! My Adventures in The Alice Cooper Group*, a memoir by bassist Dennis Dunaway (with Chris Hodenfeld; St. Martins Press, June 2015). Perhaps the most perceptive part of the book is when Dunaway writes about the name the band took back in Phoenix, Arizona, in their formative years.

"Michael, Neal, Glen, Alice and I all shared in the creation of our monster. . . . So Alice stepped into the shoes of this creation and with astounding confidence too.

"In our eyes, as our creation strengthened, the duality of the name as a band and as a character seemed well within the public's comprehension. Most people didn't have much of a problem figuring it out. In reality however, the band, without fully realizing it, had become a two-headed snake with one head destined for amputation. . . ."

Unfortunately, when it comes to the band's unceremonious and fairly cruel breakup in 1975, Dunaway pulls his punches, and allows Vincent Furnier—(aka Alice Cooper), the guy he'd been in bands with since teenagehood—slide completely off the hook.

"Alice Cooper had finally struggled to the top of the glittery rock pile and it was time to negotiate a new recording contract. This is when bands finally make any money. Dropping out at this point would make zero sense. That contract was negotiated for Alice Cooper. But we were floored to find out that we weren't included. One day I was rock star. The next day I was uninvited. Boom. Dealt out. Gone."

The final bass-guitar reminder in recent days came from writing the review of this issue's Recording of the Month (see p.117)—Sly & the Family Stone are big and powerful on the newly released *Live at the Fillmore East, October 4th & 5th, 1968*—and hearing again the great Larry Graham, who forever changed the world's perception of bass guitar: from simple member of the rhythm section to full-on lead instrument.

The Funk Brothers, James Jamerson, right.

All of these bass references led me to think about who finally brought lasting respect to the bass, and particularly of the electric variety. That led to one man: the inimitable, indomitable James Jamerson, who played on 70 No.1 R&B hits. An almost physical presence in the 2002 documentary *Standing in the Shadows of Motown* despite having died in 1983, Jamerson was—with drummer Bennie Benjamin and others—among the great instrumentalists who plied their craft for little money and no royalties in Motown's rudimentary Studio A, aka "The Snake Pit." Jamerson's chromatic leads, open notes, flat fives, and overall timing and musicality remain unequaled. His inventiveness is legendary. Just as Spooner Oldham once sat down at the electric piano and, on the spur of the moment, concocted the intro to Aretha Franklin's classic recording of "I Never Loved a Man (The Way I Love You)," Jamerson just plucked out, on the spot, the notes to the intro of the Temptations' version of the Robinson/White hit, "My Girl." Like the rest of the Funk Brothers (what the Motown house band called itself), Jamerson was not credited on a Motown record until 1971, when he was listed as the "Incomparable James Jamerson" on Marvin Gaye's immortal *What's Going On*.

James Jamerson was not invited to play Motown's 25th Anniversary Special, taped in Los Angeles in March 1983. He wasn't even allowed backstage. After scalping a ticket, he sat in the back, listening to other players copy his lines. It surely broke his heart. ■

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